COAL AGE

Volume 17 New York, March 18, 1920 *Number* 12

Penalties of Usefulness

By R. Dawson Hall

LOOKING at the new Cummins-Esch railroad bill, we come upon unmistakable evidence of the fact that railroads are, or at least have been, of great public utility. If they had not been, what occasion would there have been for making the income of the railroads matters of close control by the Interstate Commerce Commission?

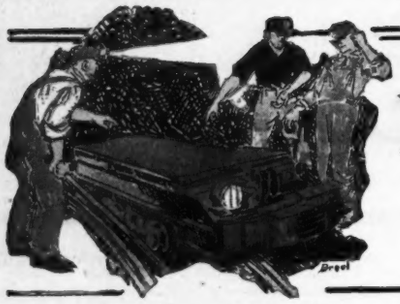
If the railroads had not been so essential, we would not have arranged that if they earn over 6 per cent, one-half of the excess is to go to the reserve fund of the road and the other half to the General Railroad Contingent Fund. The road can divide with its stockholders and bondholders nothing that is earned over 5½ per cent. The next half per cent earned is to make provision for improvements, betterments or equipment and all the excess above that percentage is to be either laid away for a rainy day or to be placed in the General Railway Contingent Fund to be lent to the railroads at 6 per cent.

This is the stigma and these are the penalties of usefulness—a mark of Cain and a consignment to penury. It will not be for long, however, for if it is continued such treatment is sure to make our railroads less and less useful year by year. A hobbled horse draws no load and competing with him there are still unfettered steeds. There is the auto truck which uses, without pay or with inadequate pay, the public roads, the public bridges, the city streets—that "flexible" unit which the automotive press so eloquently praises. Its profits are suffered to be as flexible as its services.

The auto truck and the electric wire will take the place of the railroad but they will be unquestionably regulated in their turn. In time the former will find that the public has put a brake on its axles, a skid under its wheels and a chain between its spokes. The automobile, gay and debonnair, richly painted and upholstered, may largely escape so long as privately owned because its usefulness is not so evident. But the auto truck and the taxicab will find the penalties of usefulness eventually crippling their prospects. Till that time, till auto trucks are numerous enough to satisfy the public, rates will be at the owner's whim and profits unregulated, and the railroads will suffer.

The utilities corporation newly seeking a franchise may find conditions favorable, while old utilities long ago established and having served the public for years will be required to give service without chance of a return equal to that granted less valuable servants. For a while we must pamper the auto truck, motor bus and power line, for we wish to encourage them to enter the battle of industrial life, but once established the iron heel of regulation will press out their life as it has already pressed out the life of the railroads.

Some day, perhaps the "iron horse" will be so crippled as to be useless and not useful. It is finding it hard today to haul enough coal to keep running. When it fails utterly we shall begin to realize that we still need it as we did in the days before and just after the civil war, when we prodigally offered anything and everything if the railroads would consent to come and serve us.

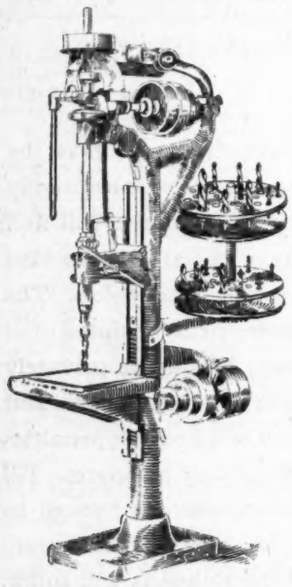


IDEAS AND SUGGESTIONS

PRACTICAL SCHEMES THAT MAKE THE DAY'S WORK EASIER

Drill Holder for Drill Press

On the drill press in the machine shop of the Burnside Colliery of the Philadelphia & Reading Coal & Iron Co. near Shamokin, Pa., there is installed a rather interesting stand for holding different-sized drills.



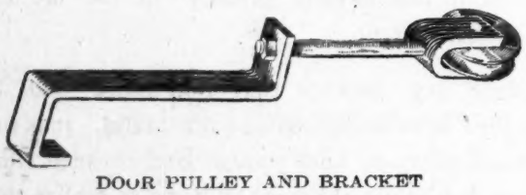
DRILL HOLDER AND PRESS

This holder is a double-deck affair consisting of two sets or pairs of circular disks as shown in the accompanying illustration. These disks have corresponding holes of various sizes in the upper and lower plates to hold the drills. The larger drills and therefore the larger holes are placed near the center while the smaller ones are at the edge. This allows the operator to select any drill he desires by simply glancing at the drill holder. Each pair of disks is arranged so that it can be rotated. It is extremely easy to increase the capacity of one of these drill holders, as all that is necessary to do is to increase the diameter of the plates which will permit more holes and therefore more drills. It is also possible to increase the capacity by having more sets of the horizontal plates.

Arrangement for Closing Mine Doors

At the Burnside Colliery of the Philadelphia & Reading Coal & Iron Co. near Shamokin, Pa., a small portable pulley for use in closing a mine door has been designed.

This pulley is provided with a hook so that it can be hung over the lagging at any point desired. Over the pulley at the extremity of the hook a chain passes, one end of which is attached to the door, while a weight is fastened to the other.

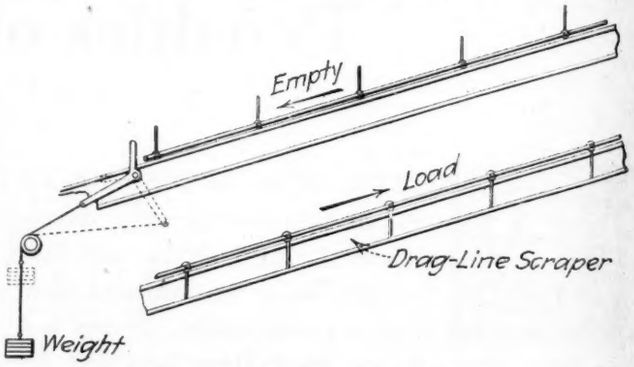


DOOR PULLEY AND BRACKET

The advantage of having this pulley adjustable is that it can be placed easily in any desired position and adjusted from time to time, thereby allowing the door to work to the best possible advantage.

Safety Stop for Drag-Line Scrapers

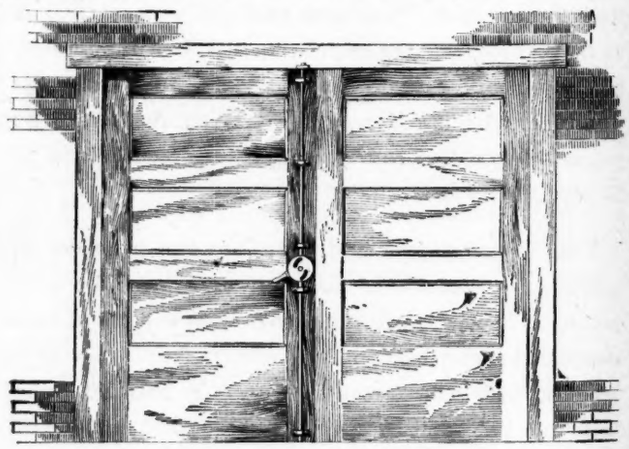
The St. Clair Coal Co. at St. Clair, Pennsylvania, has installed a safety device designed by one of its employees, John Bound. This prevents the drag line scraper from sliding back down the trough in case of a breakdown to any portion of the driving machinery.



DRAG-LINE STOP IN PLACE ON CONVEYOR

Fastener for Double Doors

A home-made door fastener for double doors has been made at the Burnside Colliery of the Philadelphia & Reading Coal & Iron Co. near Shamokin, Pa. This consists of a steel disk ¼ in. thick with a handle attached. This disk is pivoted in the center and provided with two circular slots about ½ in. wide on opposite sides.



FASTENER FOR DOUBLE DOORS

Two pieces of bar steel ¼ x 1¼ in. are fastened by means of bolts at the end through the slots. The upper end of these bars engage in the casing of the door at top and bottom. By moving the lever on the disk the bars raise or lower, locking or unlocking the door.

A War-Time Plant in the Pittsburgh Field

A Plant Built During the Strenuous War Period Embodies Many Elements Tending Toward Reliability—Power Is Purchased, But a Gasoline Engine Driven Unit Is Provided as a Standby

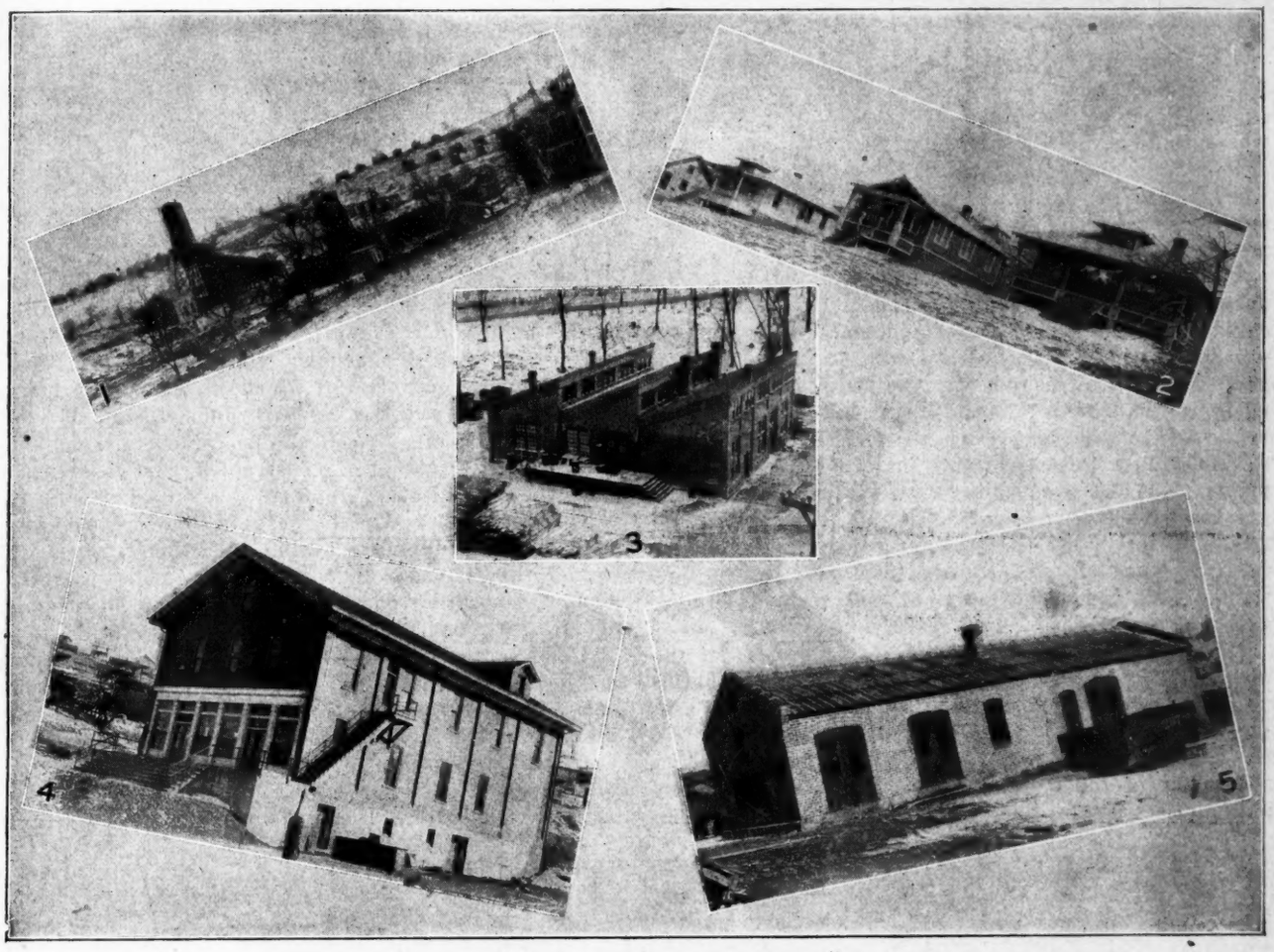
By Donald J. Baker
Pittsburgh, Pa.

DEVELOPMENT booms began in the Pittsburgh district during the early months of 1917 when operators, while sure that victory would rest with the Allied Powers, believed that the struggle would be long drawn out. Many of the new plants upon which construction work was started in the early months of the war are only now being completed. Construction of many of these developments began in April, May or June of 1917. Quite a few of the estimates made by competent military men then placed the duration of the war from three to five years. This fact undoubtedly bore considerable weight with the operators.

The wholehearted co-operation that was manifested by the coal industry in winning the war is now history. Although these plants were not subjected to the strenuous days for which they were designed, we find them today standing out in bold relief against the background of the older operations by reason of their sturdier and more complete equipment. They are now assuming the leading role as the greatest single producers in their fields.

With few exceptions, the design and general layout of the surface buildings has been made with but one end in view. That goal was to produce a maximum amount of coal under the exacting stress of war time and its resultant conditions. There is precious little time afforded for general upkeep or repairs in a period that cries for coal and more coal and if the mine is to be kept operating at full speed the original equipment must not only be made of the finest materials obtainable for the purpose in hand but the design, must be compact and convenient.

These new operations around Pittsburgh reflect high credit upon their owners and will stand throughout



VIEWS IN AND ABOUT LINCOLN HILL

(1) General view of the tipple and surroundings. (2) Types of dwelling houses. (3) Blacksmith, carpenter and machine shop. The saw-tooth roof affords excellent lighting. (4) Company store. (5) The material-storage or warehouse building.

their periods of operation as monuments of their projectors' patriotism. When the war ended, the coal industry was just becoming organized. Had hostilities continued for two more years, the organization would have been nearly complete.

War caused these plants to be constructed as they have been, and in this respect the overt acts of the present Holland wood-cutter have placed the industry on a new level. In the younger days of the industry, a plant grew up over night. The surface buildings of the mine were constructed of the cheapest materials available and in the quickest possible manner. The houses of the workers were "thrown together" quickly and conveniences in them were overlooked. This fact has doubtless retarded the Americanization of the mining population—which is largely a foreign one—more than anything else; for to encourage interest in a house that is not a home is nearly impossible, or at best is accomplished under many difficulties.

Houses Can Be Made Homes

We are told by psychologists that the base of real Americanism is the hearthstone. How can we then expect to lay a firm foundation against radicalism where there are no hearthstones? In the early days of the industry, the human element was cast aside when the mines were opened, and today we are in many respects to blame for the fact that "Soviet Arks" are plying between our shores and Russia.

Fortunately times have changed and today the industry is on a more solid footing, at least from the engineering and sociological standpoint. It is a pleasure to visit the new operations. An impression is gained that is refreshing, for the conviction is forced upon us that here is a business and not merely a venture. In the long run, the original capital invested will be returned much quicker than at those plants that had a mushroom growth, for there is a greater ease in handling the output and repairs are few and far between. It took the war to impress upon us some of our own shortcomings—things that should have been widely known and recognized long ago.

One of the plants that dated its growth from the month when war was declared is that of the Lincoln Gas Coal Co., which is situated at Lincoln Hill in Washington County about 3 miles west of Washington on the pike to Wheeling, W. Va. This operation is a subsidiary of the Pressed Steel Car Co. of Allegheny and McKees Rocks, Pa., and is allied with the Hillman Coal & Coke Co. of Pittsburgh—a company that has an annual production of 10,000,000 tons of coal. Twenty-two hundred acres of coal are embraced in the tract that will be developed. The coal is that of the Pittsburgh bed and averages 6 ft. in thickness.

The first stone in the construction of the plant buildings was turned on April 6, 1917 and on Aug. 26, 1918 coal was run over the tipple. This is a relatively short period of time and seems even shorter when the labor difficulties of that period are recalled. The labor problem was fraught with uncertainty, for the draft boards were in full session and men knew not when they must answer their country's summons. Furthermore, the railroads were decidedly unreliable by reason of war-time restrictions that included many embargoes on highly needed materials.

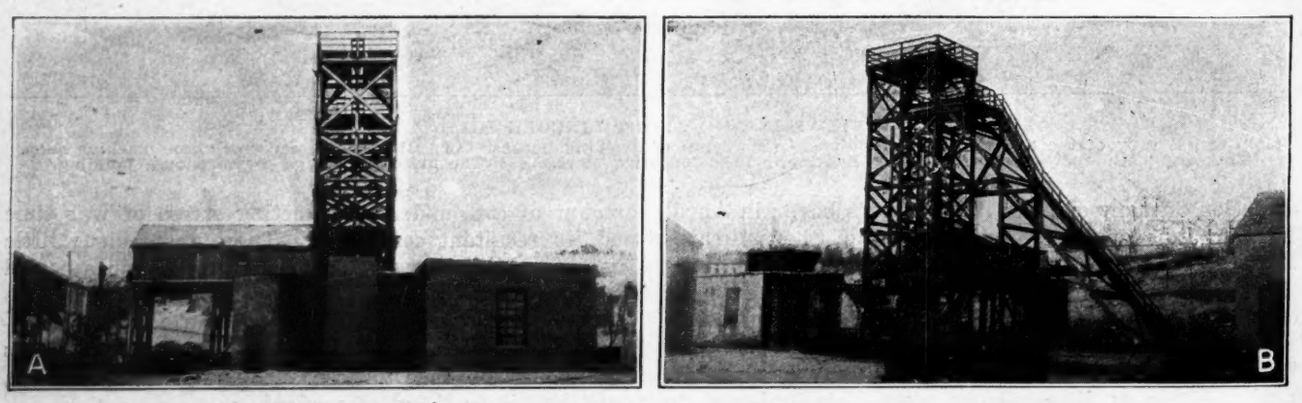
George Wilson, superintendent at Lincoln Hill, has been in charge of the property for the past two years or more. Baton & Elliott, mining engineers of Pittsburgh, designed and supervised the construction of the plant buildings as well as the underground layout. The Mather operation which was described in the Nov. 13 and 20, 1919 issue of *Coal Age* was also designed by the same firm as was the community amusement building of the Hillman Coal & Coke Co., at Hillcoke, Pa., a description of which appeared in the Oct. 9 issue of the same year.

Both Shafts Are Concrete Lined

Two shafts have been sunk at Lincoln Hill, one 452 ft., and the other 469 ft. in depth. The latter is the main-hoisting shaft. It is concrete-lined and is 32 x 11 ft. in dimensions. It is divided into three main compartments, two of which are utilized in hoisting, while the other is an air compartment, 11 x 9 ft. in size. There is also a pipe compartment. Vertical ladders have been constructed that lead to a platform landing every 18 feet.

The air and material shaft is likewise concrete lined and is a duplicate of the hoist shaft in general overall dimensions. It contains two hoist compartments as well as one for the unobstructed passage of air. A vertical ladder in this shaft leads to a platform at a depth of 60 ft. where a pump has been installed. Both shafts are equipped with Connellsville Manufacturing & Mine Supply Co. cages; the self-dumping type being installed for coal hoisting.

The main tipple is of wood construction with corrugated asbestos siding. Keasby & Mattison of Pittsburgh supplied this latter material. The headframe



"A" FRONT VIEW AND "B" QUARTERING VIEW OF THE SHAFT UPPERWORKS
One compartment of the shaft is an upcast connected to the fan located a short distance away. A second compartment is used for hoisting and lowering men and materials.

here is of steel, 115 ft. high with 10-ft. sheaves. Both tipple and headframe were erected by John Eichleay & Sons of Pittsburgh. Within the tipple there is a weigh basket, gravity screens and car retarders, all manufactured by the Phillips Mine & Mill Supply Co.

The coal is not hand picked and considerable of the output will be loaded as mine-run, although some will be sized. All apparatus has been installed in such manner as to insure the least amount of labor being employed on the tipple. The cars dump into a receiving hopper that feeds by gravity to the screens from the weigh basket. From the screens there is an unrestricted run to the railroad cars beneath. Loading booms have been provided for the lump sizes. Rock is dumped into a special bin and later removed to the rear of the building by trolley-type slate larries.

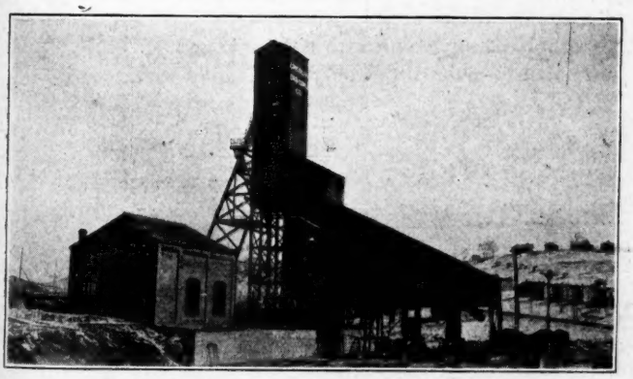
Rock Disposal Is an Important Problem

Much rock and refuse have been encountered inside the mine and the rapid handling of this material on the surface had to be provided for in the design of the tipple. The hoisting apparatus has been laid out to accommodate 3,000 tons of material in 8 hr. but is is doubtful if that amount of coal will ever be run over the tipple because of the rock that must be moved during development work.

There is a decided contrast between this tipple, which is practically mechanical in its operation, and others that are more commonly seen, and which employ from 10 to 20 men.

The air-shaft tipple is a temporary wooden structure that is at present used for supplying domestic coal needs. This tipple is equipped with one hand-operated dump. It will be merely mentioned here as it is not one of the main plant units. A substantial wooden headframe is situated over the air and material shaft.

A combination lamphouse, hospital and mine-foreman's office is located near the air-and-material shaft and is of brick construction with tile roof and cement flooring. The location of this building is nearly ideal. It is in a direct line with the route taken by the men in going to and from work. The hospital entrance



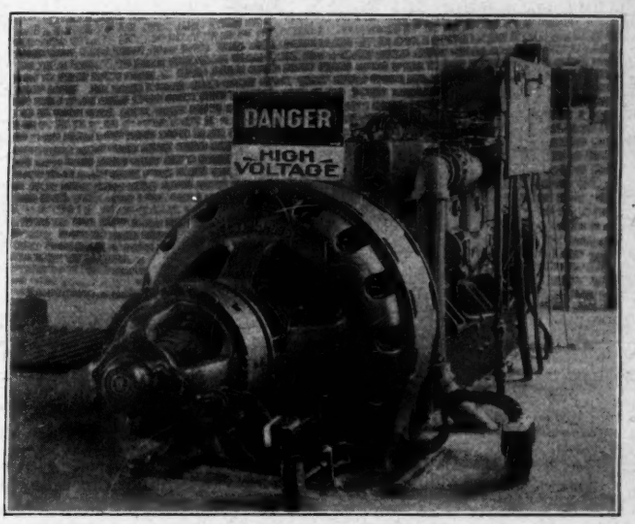
TIPPLE AND HOISTHOUSE

This equipment has been designed to hoist and prepare 3,000 tons of coal daily. The tipple is practically mechanical in its operation throughout.

faces the shaft. The main portion of the building houses 400 Edison safety lamps which are shelved and recharged through rheostats. There is an electrically operated Rochlitz water-still in this room.

The mine-foreman's office adjoins the lamp room and contains the water-gage register. This little detail of arrangement might well be more generally followed, instead of having the location in the fanhouse. Dangerous diversions of air currents that sometimes occur through door sets being carelessly left open will be indicated on the water gage and show that something is wrong with the circulation. In the efficient and intelligent supervision of a mine, the water gage plays an important part and should be under surveillance at all times.

The hospital comprises one room which is adjacent to the mine-foreman's office. In it are contained four sets of Draeger breathing apparatus and a Draeger recharging oxygen unit. A lungmotor, manufactured by the Life Saving Services Co. is also part of the



A STANDBY GENERATING UNIT

In case of power failure this gasoline engine-driven generator may be put to use operating the plant and feeding any excess energy into the transmission line.

equipment. The room is fitted with table, desk, medicine cabinet and lavatory. The nearness of the building to the shaft is an important first-aid factor.

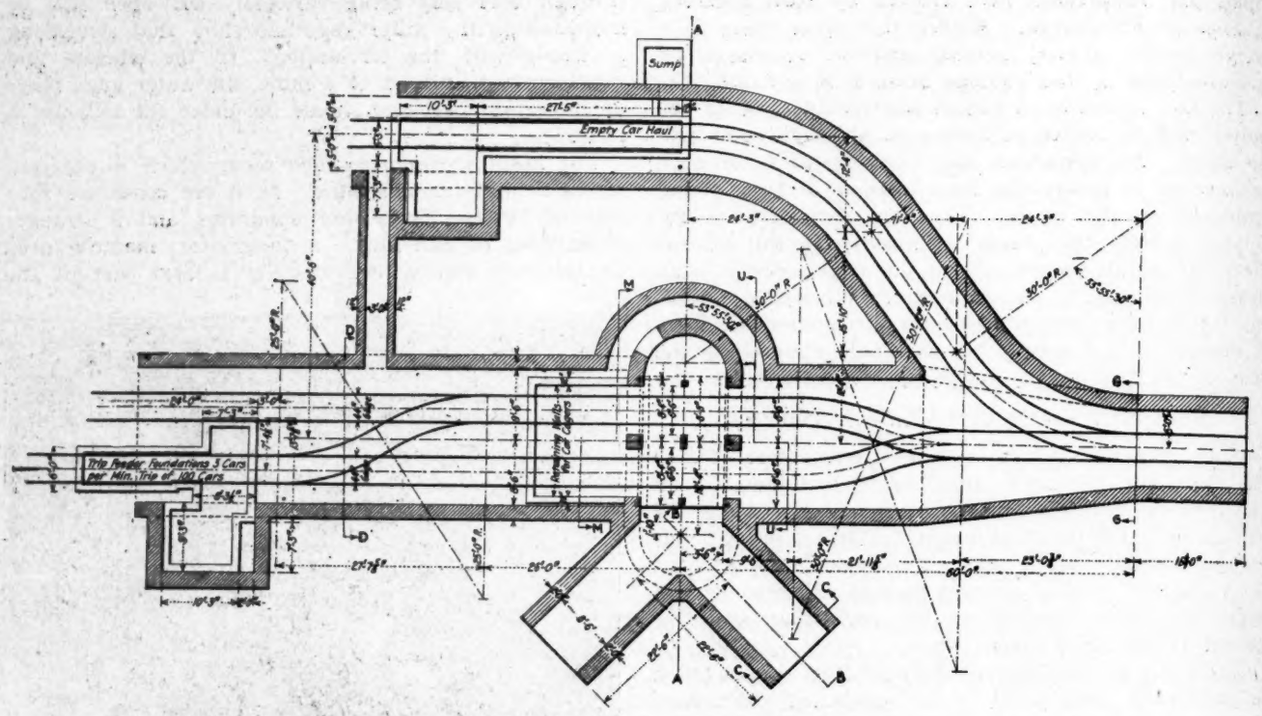
The secondary hoisthouse is divided by a brick partition so as to bring the substation under the same roof. This building, 72 x 32 ft. in dimensions, is of the same characteristic construction as the rest of the plant units; viz., cement floor, brick walls, tile roofing, carried on steel roof trusses. Power for the operation of the mine is purchased from the West Penn Power Co.

The reduction of the high-tension line of 22,000 to 2,200 volts is made at an outdoor transformer station that is located in the rear of the building.

Two Westinghouse 200-kw. 60-cycle transformers are employed in stepping down the current. From the transformers, the 2,200-volt lines pass to two 290-hp. Westinghouse motors driving two Westinghouse 200-kw. 250-volt direct-current generators. These machines operate at 900 r.p.m.

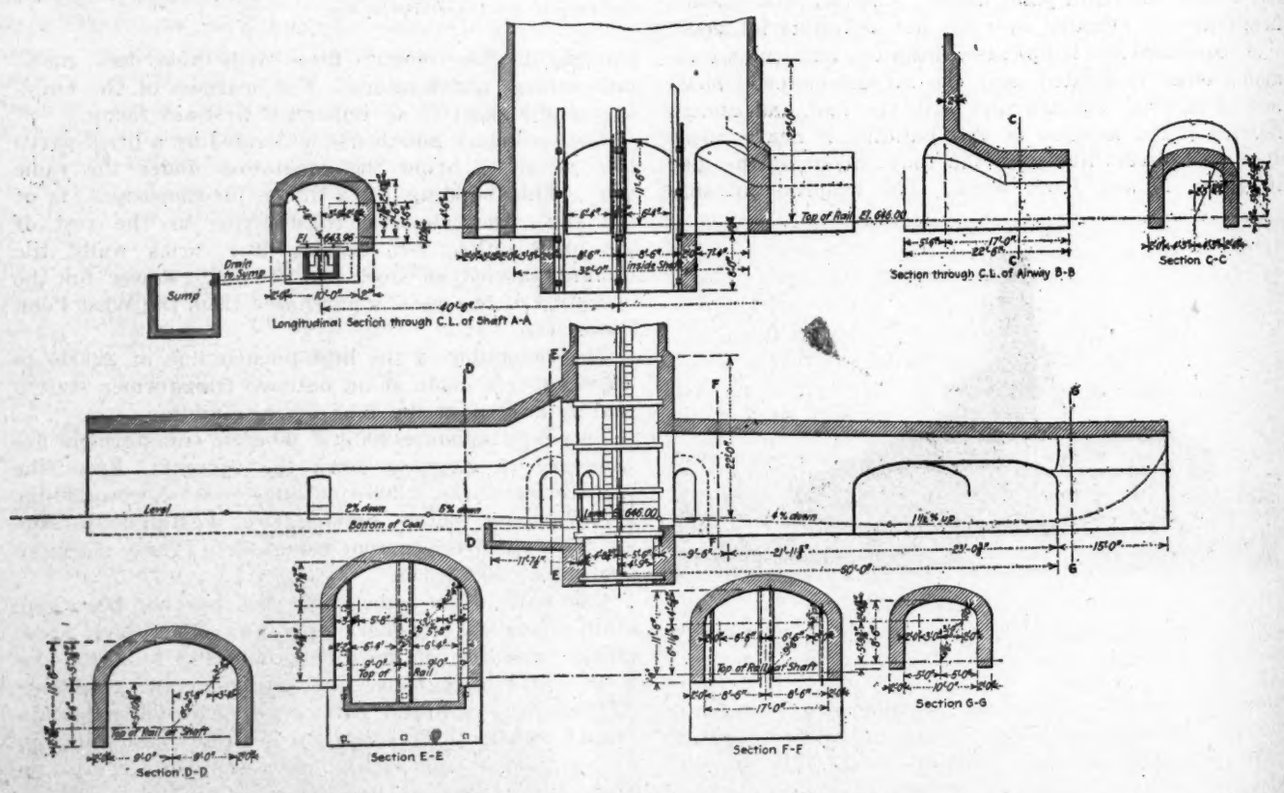
One unit in the substation that has not been generally installed elsewhere is a Van Blerc high speed marine gasoline engine direct-connected to a 100-kva. 2,400-volt Westinghouse alternating-current generator. This unit is equipped with a Leece-Neville automatic circuit-breaker. This auxiliary power plant will only be operated during such times as the service over the high-tension lines is below par.

The idea of driving an alternating-current generator by a gasoline engine is not a new one but it is a practice that might well be more generally followed. The arrangement is highly compact, a fact that in



PLAN OF TRACKS AT THE SHAFT BOTTOM

Tracks kickback, car feeder and car haul are arranged relative to the shaft so as to secure rapid and efficient handling of the loaded and empty cars. Speed and reliability are here of the utmost importance.



CROSS-SECTION OF THE ARCHING AT SHAFT BOTTOM

Roadways, run arounds and all passages generally near the caging point are concrete-arched. This secures a neat as well as substantial bottom obviating the danger from falls of roof rock.

itself is an influential one where minimum space is desired in housing the auxiliary power plant. However, the boiler house has its advantages, especially in those regions where the high-tension lines are liable to be out of commission for any appreciable length of time.

Gasoline consumption is an important cost item if the engine must be operated over long periods. A large slate-panel switch-board completes the equipment in the substation. All of the electrical installations at Lincoln Hill are of Westinghouse manufacture.

A wing of the substation is utilized as a pump room and contains a 5 x 7 in. electrically-driven horizontal Scranton pump. This stands directly over a 19,000-gal. concrete reservoir which provides the water for town and plant consumption. The water is pumped from this point to a 57,000-gal. tank on one of the adjacent hillsides. From here it flows by gravity to the town through 4-in. cast iron pipe.

As has been already mentioned, the secondary hoisthouse adjoins the substation. Equipment here consists principally of a Vulcan hoisting engine with a 6-ft. drum which is direct connected to a 300-hp. motor. A cable 1⅜ in. in diameter is used.

The main hoisthouse is 43 x 38 ft. in dimensions, and contains a Vulcan hoisting engine with a conical drum that ranges from 7½ to 10½ ft. in diameter. This hoist employs a 1¼-in. cable and is geared to a 1,000-hp. Westinghouse motor. Both hoists are equipped with automatic safety appliances for regulating the speed of the drum, length of cable payed out, etc.

Another of the main buildings of the surface plant is a combined blacksmith, machine, and carpenter shop. As can be noticed in one of the accompanying illustrations, the design of this building is unique, in that the separate rooms are practically distinct buildings. The blacksmith shop is equipped with forges, and electrically-driven blower fans.

The carpenter shop contains an electric saw, shaper, etc., while the machine shop is provided with a power driven hack saw, pipe machine, lathe, and drill press. Equipment within the building as a whole is not complete as yet. The general design was primarily influenced by the desire to obtain as much natural light as possible. Work carried on inside these shops is thus made easy and effective.

Ventilation Problem Is Simple As Yet

The fanhouse, which is 34 x 18.5 ft. in dimensions, contains a 5 x 14-ft. double-inlet, reversible Jeffrey fan. This is connected by belt to a 30 hp. Westinghouse motor. The ventilation problem is comparatively simple so far, since the main entries have been driven scarcely 1,000 ft. and development of the coal is still in the primary stages. In this respect the construction of the surface buildings has been keeping ahead of the underground work.

A supply house, 70 x 61 ft., is utilized for storing spare parts and various materials. Three other buildings might be mentioned, although these are not directly as important as the ones already described. One of these is a magazine, 20 x 14 ft., which is constructed entirely of concrete. It is, of course, located some little distance from the plant proper. An explosive cap or detonator house, 7 x 5 ft., is of brick and concrete construction while the other building is utilized for the storage of such materials as oil, sand and cement,

A spur is now under construction to this building and these materials will be unloaded as far as possible by mechanical means. Another track from the building to the air and material shaft will minimize the amount of labor required in handling these materials and at the same time bring them within easy access of the shaft. The rapid rehandling of all supplies regardless of their nature is a necessity if steady production is to be maintained. This can readily be seen.

Arrangements at the shaft bottom are rather elaborate. The main haulageways are 19 ft. wide, arched and concreted for a distance of 150 ft. on either side. The loaded cars on one side of the bottom are engaged by a car-feeder and are pulled nearly to the shaft. They then run a short distance by gravity and are caged. The empty cars as they come off the cage, run by gravity to a kickback after passing which they are engaged by a car haul and are pulled up a short incline to enter the storage tracks.

The mine cars are of 2½ ton capacity and constructed with steel sides and wooden bottoms. They were supplied by the Pressed Steel Car Co. A track gage of 44 in. is employed with 60-lb. rails on the main haulageways. Four 6-ton Jeffrey locomotives are in use at present. Heavier machines have not been purchased thus far as the development work has not reached a stage that necessitates their use. Other equipment underground includes two 7½-ft. breast machines and six Goodman shortwall gasproof mining machines. A cement gun has been purchased and is finding considerable use in the work of driving entries which are gunited as soon as completed.

Drainage Water Will Be Pumped

The water from the mine will be directed to one main pump and thence voided to the surface through a 4-in. discharge line by two 5 x 7-in. horizontal Scranton pumps. Other pump units probably will be portable ones. At present one 3 x 5-in. Austin field pump with a 2-in. discharge line is in use. However, it is a little hard to prophesy now, just how extensive the final pumping arrangements will be, as the mine is not yet in a stage of development that would justify an approximation of the amount of water that will eventually be encountered. From indications, however, there will be plenty.

Railroad connections are with both the Baltimore & Ohio and the Pittsburgh, Cincinnati, Chicago & St. Louis lines. A storage yard wherein 85 empty cars may be accommodated has been constructed as well as one with a like capacity for loaded cars. In less serious vein, this appears to have been the only "slip-up" in the surface layout. Where the cars are coming from to fill this yard is a secret that others would like to share. One answer to this question might be found by consulting either the ouija board or the gypsy dream book.

Duty to Keep Mine Premises in Reasonably Safe Condition.—Where a coal mining company's employee's duties in spragging tram cars diverted his attention from a runway along which he was required to move, the company is liable for injuries sustained by him through stumbling over an obstruction negligently permitted by the company to remain in the runway. (*New Mexico Supreme Court, Leyba vs. Albuquerque & Cerrillos Coal Co., 164 Pacific Reporter, 823.*)

How An Anthracite Breaker Was Remodeled—II

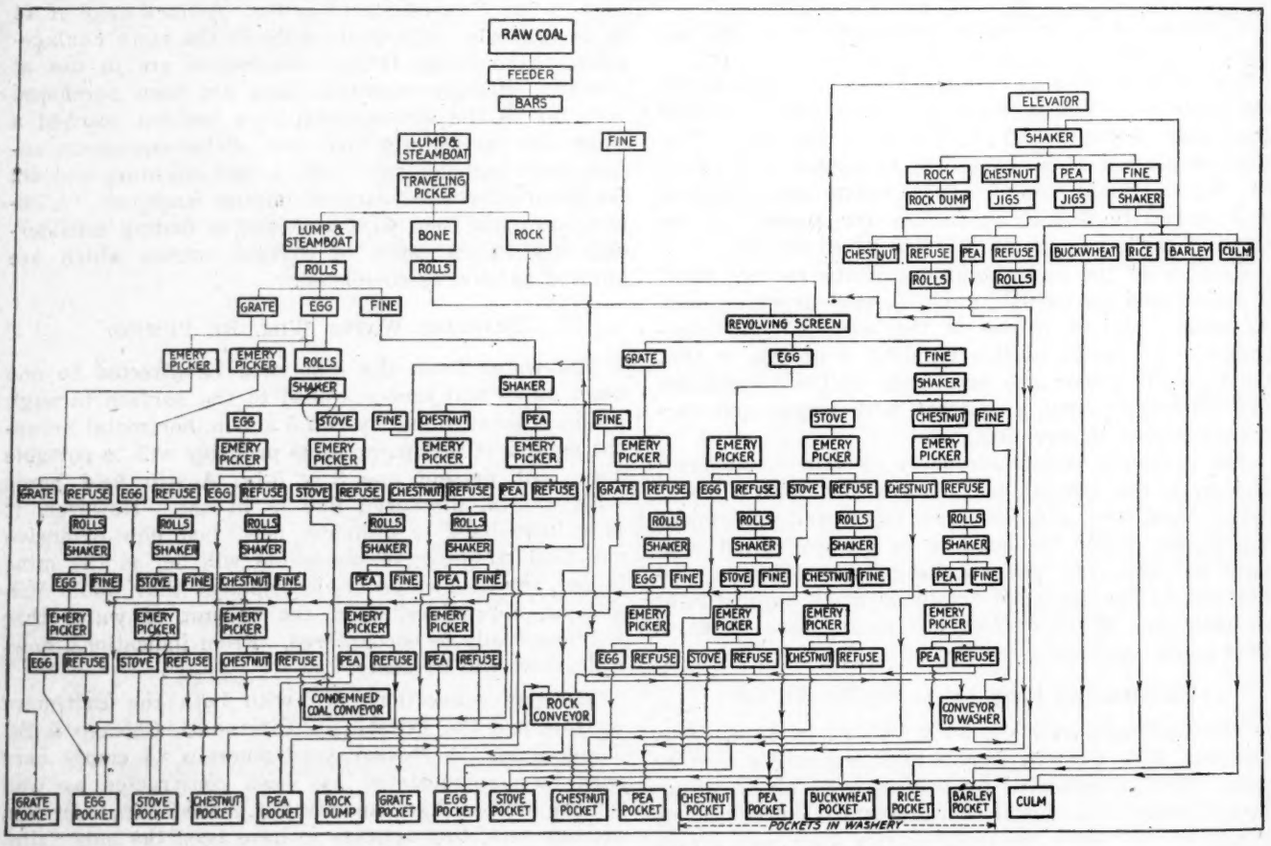
Imperfect Preparation Made Necessary the Remodeling of the Breaker, but the Change Paid Well, for the Payroll Also Was Cut $140,000 a Year—Wet Preparation Adopted Is Much Simpler and More Efficient Than Dry

By Dever C. Ashmead
Tarrytown, N. Y.

In remodeling the Old Forge breaker the first and probably the most important reason lay in the character of the coal itself since it did not lend itself well to the old method of preparation. The second reason was the fact that too much labor was employed and during the war every man's help counted. The third reason was that the cost of operation of the breaker had become too high; since the average pay roll for every man and boy was $1,000 a year, a reduction in the number of men from 156 to 16 made a considerable saving and warranted a large capital investment. The fourth reason was that the old structure showed signs of weakening after 18 years of continuous use and the foundations were rotting. It can be easily seen that the above four reasons were sufficient to warrant the cost involved in remodeling this breaker.

The old structure was a dry breaker and an interesting comparison can be made between the old and new flow sheets as shown in the article. Furthermore, the movement of the material readily can be traced in the cross-section of the new breaker as shown on p. 534, and when this movement is compared with that in the old breaker, as shown in the first part of this article in the issue of *Coal Age* on March 11, 1920, p. 483.

In the old breaker the coal was brought in mine cars to the top of the building by means of a car haul, and there dumped. A rotary feeder discharged coal to grizzeleys where the lump and steamboat were removed and delivered to a traveling table where bone and slate were picked out. The coal then went to a set of rolls and was crushed to the sizes of grate and egg. If it was not desired to make grate coal, this size was again crushed to egg in another set of rolls. If grate coal was to be made this size was run through an Emery picker and the refuse separated from the coal which went direct to a pocket. The refuse passed to a set of rolls and was crushed, then went over a shaker and the egg size passed through an Emery picker which separated the coal from the refuse. The coal went direct to the egg pocket and the refuse to the rock conveyor



FLOW SHEET OF THE OLD FORGE BREAKER BEFORE REMODELING

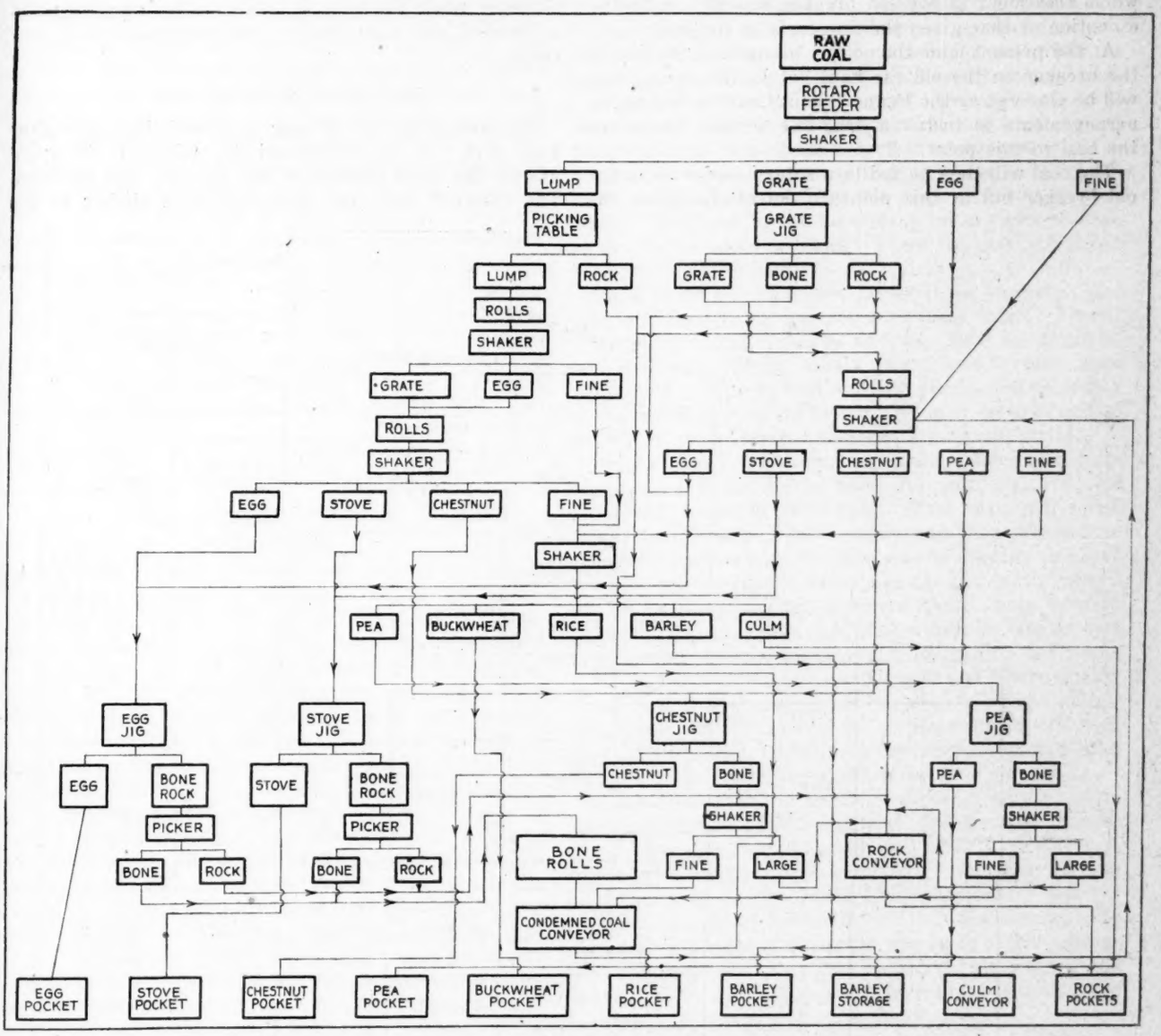
This flow sheet shows how the coal in the Old Forge Breaker was treated before being remodeled. By referring to the new flow sheet it will be seen what a vast difference there is between the two methods.

which took it to the rock dump. The fine refuse that passed through the shaker went to the condemned coal conveyor and was given retreatment.

The egg coal from the lump rolls received the same treatment that has just been described, except that when there were insufficient orders for the egg or grate coal these sizes were passed through a set of rolls and crushed, then passed over a shaker, the egg and stove removed, and the fine coal sent over another shaker separating the chestnut and the pea. The fine coal from this shaker was taken by a conveyor to the washery for further treatment. Each of the above sizes—egg, stove, chestnut and pea—received the same treatment that the grate coal received, as previously described. The clean coal went to the pockets, the first refuse produced to the condemned coal conveyor and the final refuse to the rock conveyor.

The coal that passed through the lump and steamboat bar screens was sent to an old-fashioned revolving screen and the grate and egg coal separated. The coal going through this screen passed to a set of shakers where the stove and chestnut sizes were removed from the fine material which was sent to the washery by conveyor for retreatment. The grate, egg, stove and chestnut were treated exactly the same as the grate coal and the refuse was handled in the same manner.

The washery had been remodeled since its original construction and the coal was carried from the breaker by means of a conveyor. This is discharged into an elevator leading to the top of the washery. Here the coal was passed over a wet shaker and the large rock, chestnut and pea were separated from the fines. The rock, when picked from the coal, went directly to the rock dump. The chestnut and pea passed to jigs, and from thence to the pockets. The refuse was sent to rolls where it was recrushed and sent back to the main shaker. The fine coal from the first shaker was passed over another shaker and the buckwheat, rice, barley and culm separated. The buckwheat, rice and barley went to their respective pockets while the culm went to the culm bank.



FLOW SHEET OF THE REMODELED OLD FORGE BREAKER

A great difference is shown between the two flow sheets, the old breaker was a dry one, while the new breaker is wet. The change in the method of handling the coal made a difference of 140 men. The old breaker required 156 men to operate while the new breaker requires only 16 men.

In the main breaker there was a double set of pockets that would accommodate the grate, egg, stove, chestnut, and pea, while in the washery there were 5 pockets, one each for the following sizes—chestnut, pea, buckwheat, rice and barley. The rock was all carried to a rock pocket at the rear of the breaker from which it was loaded into cars and hauled to the rock dump by a steam locomotive.

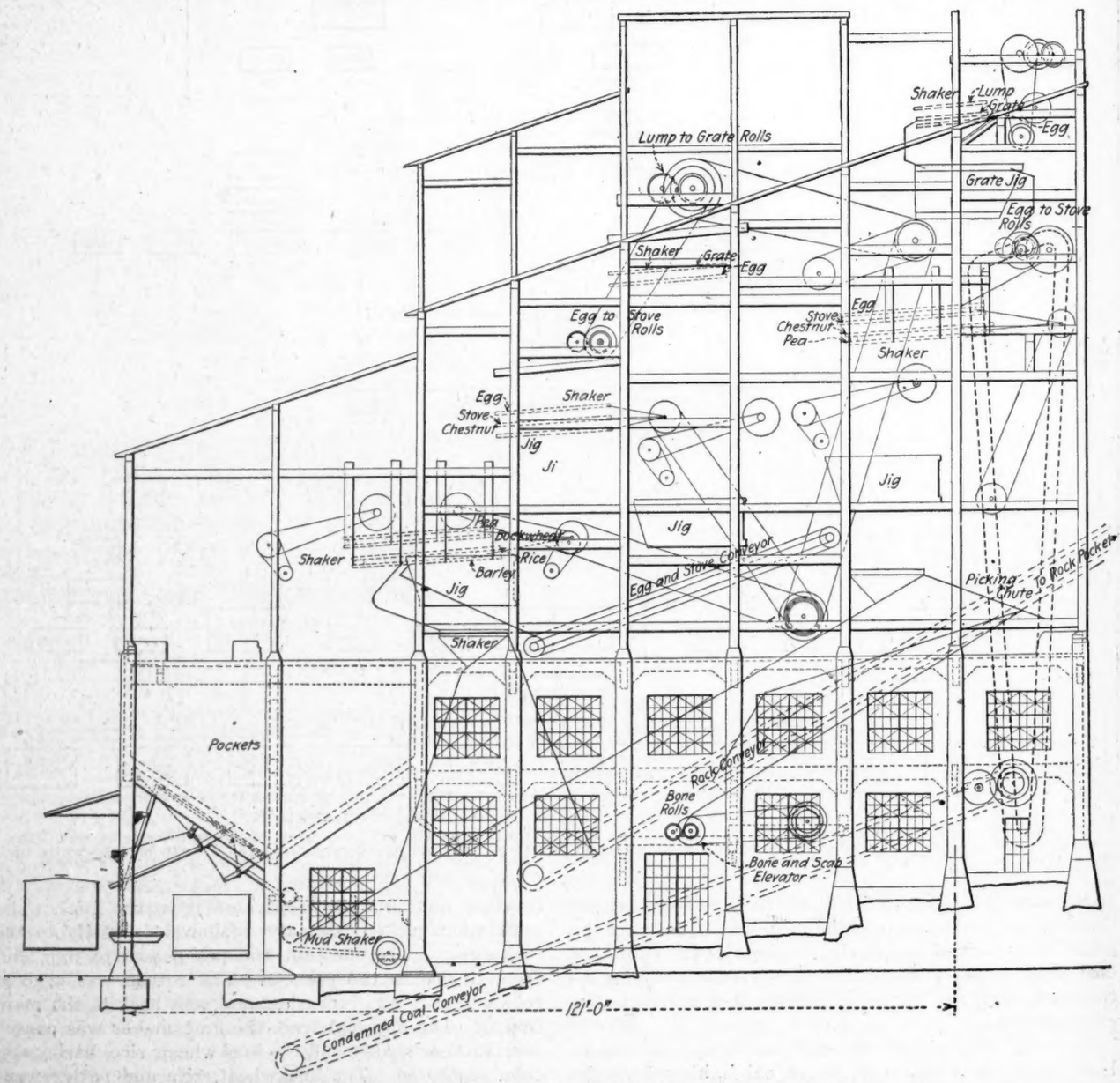
The method of treatment in the new breaker is entirely different from that employed in the old one. It is a wet method from start to finish whereas almost the whole treatment in the old breaker was dry, with the exception of that given the fine coals at the end.

At the present time the coal is brought to the top of the breaker on the old car haul but in the spring this will be changed as the Pennsylvania Coal Co. is making arrangements to install a drag-line scraper to convey the coal to this point.

The coal will then be fed to a rotary feeder as in the old breaker but at this point an entire change in the treatment begins. The coal from the feeder passes to a triple-deck shaking screen on which the lump, grate and egg are sized and the fine coal passes through. The lump coal passes over a picking table where the rock is separated and sent to the rock conveyor. The lump coal itself goes to a set of rolls where it is crushed to grate and smaller and then passes to a double-deck shaker on which egg, stove, chestnut and fine coal are made. The egg coal goes to the egg jig and the clean coal from the jig goes to the egg-coal pocket; the bone and rock from the jig are hand-picked and the rock is sent to the rock conveyor while the bone is taken to the bone rolls and is crushed and then sent to the condemned coal conveyor.

Treatment of Stove Coal

The stove coal from the egg, stove and chestnut shaker goes direct to the stove-coal jig where it is given exactly the same treatment that the egg coal received. The chestnut coal goes from the same shaker to the



LONGITUDINAL ELEVATION OF THE OLD FORGE BREAKER

As will be seen by comparison with the elevation of the old breaker as shown in the first half of this article, which appeared last week in *Coal Age*, Fig. 1, p. 483, there has been a vast improvement in the arrangements of the breaker.

chestnut jig and the clean product goes to the chestnut coal pocket while the bone and rock are passed over a shaker and the fine material goes to the bone coal conveyor while the large pieces go to the waste rock conveyor.

Now going back to the grate coal made on the first screen, this is sent to the grate jig and the rock is removed and goes to the rock conveyor, the coal and bone passes on to a roll and from thence to a shaker of 4 decks on which egg, stove, chestnut, pea and fine coal is made. The egg coal from the lump shaker as well as that from the grate shaker unite and go to the egg jigs for treatment. The stove coal goes to the stove jig, the chestnut to the chestnut jigs and the pea to the pea jigs. The fine coal from the lump shaker unites with that from the grate shaker and the fine coal from the grate shaker unites with that from the lump roll shaker and that from the first grate roll shaker and the whole combination passes to a shaker having 4 decks on which pea, buckwheat, rice, barley and culm are made. The pea coal goes to the pea jig for treatment but the buckwheat, rice and barley go to their proper pockets while the culm passes to the culm conveyor.

The coal from the lip screens, from the various jig screens, and from the bone coal rolls is taken by an elevator to the second grate roll shaker for retreatment. The rock from the rock conveyor is transported to a concrete pocket in the rear of the building and from there hauled by locomotive to the rock dump.

Are All Men Equal?

BY THOMAS HOGARTH
McIntyre, Pa.

WE ARE reading in the papers a good deal about Bolshevism, communism and a lot of other" isms" that claim they are *it*. No one can deny that as far as human nature is concerned, we all come into existence in the same way. We are all on an equal footing at that stage of life, and up to a certain age remain so. But from the time when we commence to think for ourselves, we become individuals, and from then on it is next to impossible to find two persons either in temperament or personality identical. What gives one pleasure or satisfaction may be a bore to the other.

Some people tell us that the only true way to live is to be all on an equal footing. Communism as I understand it, is life as one community, all sharing alike; the farmer, tilling the ground and raising enough food to supply the other workers, the miner producing the coal for the farmers and other industries; the other industries producing their different goods, and pooling them each individual taking enough food and clothing for his needs. In such a state of society no money will be needed.

This looks beautiful on paper, and I expect to reach this state of existence in the next world, but not while we are living on the surface of this old earth as human beings.

Let us just look squarely at life. Take the farmer and any other individual. For about six months in the year the farmer is working all the hours that he can see and feeds his stock by lantern light. Then after he has all his crops gathered in, and the weather is too bad for him to work in the fields, he has a comparatively easy time of it, and his life is fairly worth living. Some farmers, however, that live near a mine or some industrial establishment and are anxious to make a little extra money, will go and work in, we will say, the mine, until the weather will permit their getting onto the land again.

CONSIDER THE MINER

Now consider the miner under a communistic regime. He works, we will say, normally, six days a week, and eight hours a day. If he (for any reason) desires a day off he will have to state his case to the soviet and if it can find that he has a good excuse he can go, but he must be back for the next day, or there will be nothing for him to eat. The miner will then find fault with the farmer, and say he has no business to be away from his business during the winter and will not want him to take food out of the pool during the days he cannot work.

What will become of the output? The men will go to work at say seven in the morning. It may be that each man will have to produce a certain amount of coal for his day's work. One man is a good miner and an efficient worker. He produces his stint in three or four hours. The man in the next place takes eight or nine to secure the same tonnage. Those two are not going to be friends very long.

Then there are some wet places to be worked. One man will say, "I am not going to work there. I want a dry place." There will be no boss. How can there be any boss when all are equal? Furthermore, some men will not be willing to load coal and receive the same pay as the man who runs the motor. All of these are fruitful sources of misunderstanding, contention and strife.

Then coming right down to equality, some men have a natural gift for music, some for painting, and still others for breaking in horses. What man will spend ten or more years of hard study and then receive the same consideration as the man who is digging ditches? It is not human nature. Some men are constantly scheming to do something bad; others spend their time in doing all the good they can. Some men delight in war and fighting; others take pleasure in nothing but peace.

I have had a long mining experience and I have always found that it was possible for two men to work together and agree. But it is next to an impossibility to keep four or more men working in the same place and have all satisfied to share and share alike.

Those people who profess to advocate all this communistic tommyrot know well that what they are preaching is an utter impossibility and that it is through selfish motives that they preach it. Communism may come when we step over that line called death—but not before. It may be immortal but it is not mortal. To obtain such a state of existence will be to attain a beautiful heaven. And this cannot be on this side of the grave. How is it that so many believe these impossible theories? It must be through ignorance.

Damages for Conversion of Coal.—Where a railway company appropriates to its own use coal entrusted to it for transportation to the shipper's customer the measure of compensatory damages recoverable against the company is the market value of the coal at the point of destination, less the cost of transportation.

The motive which controlled the railroad in the conversion of the coal is no defense, although it may be shown where exemplary, as well as compensatory, damages are claimed by plaintiff. (*Tennessee Supreme Court, Roth Coal Co. vs. Louisville & Nashville Railroad Co., 215 Southwestern Reporter, 404.*)

How Bituminous Coal Can Be Safely Stored*

Almost Any Coal Can Be Successfully Stored if Only Adequate Precautions Are Taken in the Storing Process—Methods by Which Coal Can Be Safely Stored With Costs of Such Storage

BY H. H. STOEK†
Urbana, Ill.

ALTHOUGH the necessity for storing coal was brought prominently to the attention of every one by the coal shortage during the winter of 1917-18, this was considered merely as one of the incidents of the world war and the lesson was promptly forgotten. When on Nov. 1, 1919, only about 70 per cent of the bituminous-coal output was stopped by a strike, the lack of coal on which to draw soon made it necessary to impose many of the war-time restrictions, thus demonstrating that in peace as well as in war times, the coal supply of the country is being furnished on a hand-to-mouth basis with a small reserve for emergencies. In this connection, Secretary of the Interior Lane in his annual report says:

> The coal strike has brought concretely before us the disturbing fact that modern society is so involved that we live virtually by unanimous consent. Less than one-half of 1 per cent of our population quit their work of digging coal and we are threatened with the combined horrors of pestilence and famine.
>
> It did not take many hours after it was realized that the coal miners were in earnest for the American imagination to conceive what might be the state of the country in, perhaps, another 30 days. Industries closed, railroads stopped, streets dark, food cut off, houses freezing, idle men by the million hungry and in the dark—this was the picture, and not a very pleasant one to contemplate. There was an immediate demand for facts.

Among the facts mentioned by Secretary Lane are: "Who is to blame that so small a supply is on the surface?" "Why should we live from day to day in so vital a matter as a fuel supply?" Recently, when rereading the Presidential address of Abram S. Hewitt for the Institute at the Centennial meeting in 1876, I was struck by the following, which shows that regulation of the coal business is by no means a new problem:

> And besides economy in mining and care in preserving, there must be regularity and stability in the operation of the mine. There can be no real profit where these operations are subject to constant interruption, caused by strikes or other artificial impediments. The loss of interest on the plant at the mines and in the lines of transportation, caused by any serious stoppage to the works, would, of itself, be sufficient to render investments of this kind unprofitable. Hence, the output must be regulated

*Paper presented before the February meeting of the American Institute of Mining and Metallurgical Engineers, New York.

†Professor of Mining Engineering, University of Illinois.

MANY THOUSANDS OF TONS OF COAL IN A BIG STORAGE YARD

One of the most flexible units yet devised for handling coal to and from storage is the locomotive crane equipped with a grab bucket. No less than three of these machines may be seen in this picture.

and proportioned to the wants of the market. But this regulation must be continuous and not spasmodic. To enable this to be done, large stocks of coal must necessarily be kept on hand, in order that any sudden demand may be properly met without any serious increase in price; and in dull times, the accumulation and restoration of the stocks will give ready employment to the miners to whose families the cessation of work is a calamity of the most serious character.

The solution of this part of the coal problem is of vital interest to the miner and operator who furnish the coal, to the railroads that transport it, to the wholesale and retail dealers who distribute it, and to all who use it for domestic or industrial purposes.

The storage of 5 to 10 per cent of the total yearly output of anthracite at the upper Great Lakes ports, to take advantage of water transportation during the summer and near the seaboard and even near the mines, together with the increased summer buying for domestic use, has done much toward equalizing the monthly production of that field and has actually caused greater monthly production during the summer than during the winter months.

The storage of anthracite and the storage of bituminous coals are by no means parallel problems; and certain difficulties must be overcome in connection with bituminous-coal storage that do not apply to anthracite. However, I believe that, although the problem is more difficult, it is feasible to store bituminous coal in large amounts so as to provide an adequate safety valve for the industry which will greatly help the present just complaint of miners, operators and railroads due to slack working of the mines during the summer months.

The seasonal nature of the demand for coal and the unequal distribution of working time throughout the year and similar statistics have been forcibly presented by Doctor Smith and others.

The reason for the purchase of greater amounts of coal during the spring and summer months than are needed for current consumption and for the storage of the excess are briefly as follows:

(1) To assure the consumer an adequate supply which protects him against strikes, other labor disturbances, and uncertain railroad deliveries.

(2) To take advantage of water transportation and low freight rates.

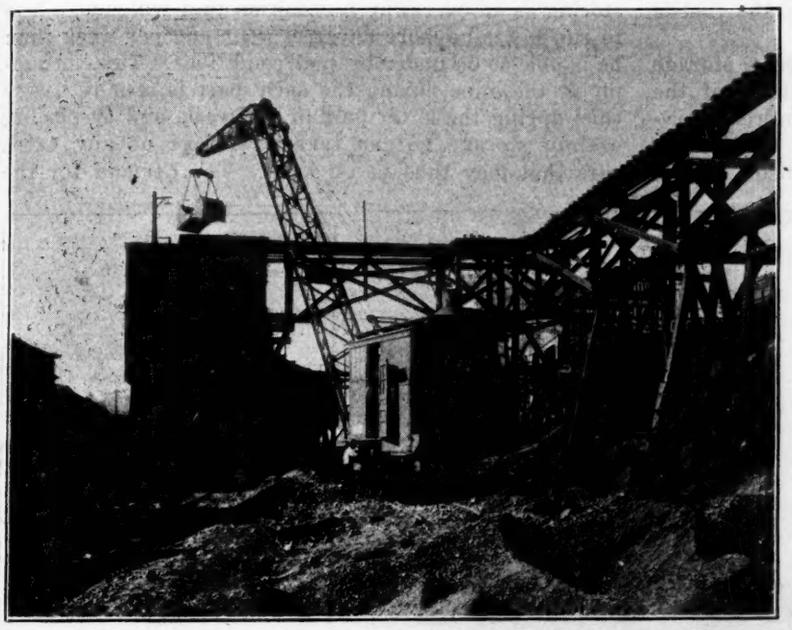
(3) To secure the advantages of low prices.

(4) To equalize the prices on different sizes of coal.

(5) To avoid the maintenance by the railroads of equipment that is used for only part of the year.

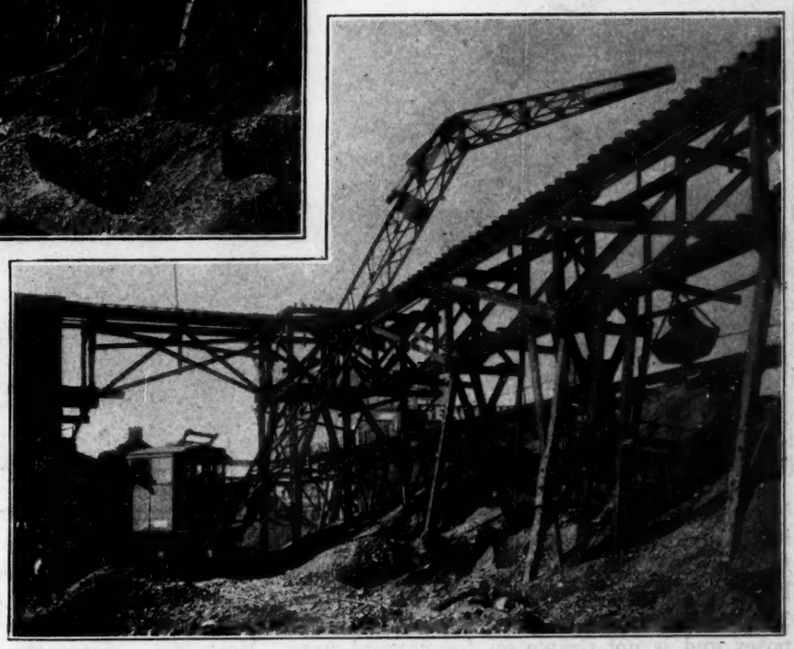
(6) To maintain a uniform rate of production at the mines.

These reasons and advantages are axiomatic to engineers and need no further comment. Assuming then that spring and summer purchase and storage of coal are advisable, the following questions naturally arise:



THIS CRANE SUCCESSFULLY "PUTS IT OVER"

To the left a locomotive crane provided with a special bent boom is shown in the act of discharging a bucket of coal that has been taken from the storage pile.



RIFLES A COAL PILE AS NEATLY AS A "TRANSOM JUMPER" ENTERS A STORE

At the right the crane is digging coal from the opposite side of the trestle. The special boom, with which this machine is fitted, permits this operation to be successfully accomplished.

SPECIAL MACHINES ARE SOMETIMES BUILT FOR STORING AND RECLAIMING COAL

1. Where and by whom should coal be stored? The storage should be as near as possible and practicable to the point of actual consumption so as to insure to the user a steady supply and to avoid the extra cost and extra breakage incident to each rehandling and, also, so as best to utilize the transportation facilities. Storage at the point of actual consumption is, of course, frequently out of the question, for many householders have not adequate space in their cellars, since in the planning of houses sufficient attention is not given to the placing of the fuel supply. In the congested business districts of cities, space is too valuable for renting purposes to permit its use for storage; in such cases storage in any quantity at the point where the fuel is to be used is impracticable.

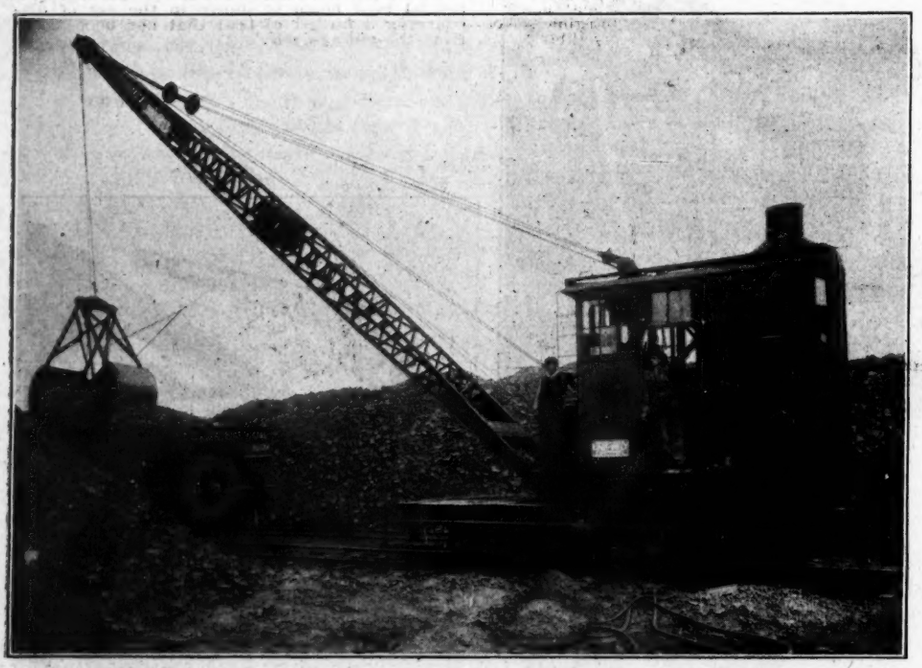
Many of the large users of coal provide a storage supply on the outskirts of the city or outside of the city limits, within the range of suburban railroad service or even motor-truck hauling distance. A striking example of this is the Commonwealth Edison Co., of Chicago, which in addition to storage piles at each of its power houses within the city keeps a supply of several hundred-thousand tons just outside the city limits. Some of this coal has been in storage for about 10 years; the supply is kept mostly for emergency purposes and is not drawn on for current uses. Most of the stored material is the ordinary central Illinois product from which all of the fine coal below 1¼ in. has been removed. There has been practically no trouble from spontaneous combustion. During the strike of 1919, this storage supply was reduced to about 15,000 tons. Public-utility companies, byproduct coke ovens, and other metallurgical industries must store to insure continuous operation of their plants.

The ordinary coal dealer handles a comparatively small amount of coal, frequently not over 5,000 to 7,000 tons per year. This means that he cannot install expensive storage appliances unless he combines with a number of competitors. I do not know of any such combination storage among retailers. One company in Rock Island, Ill., has a number of storage bins, which it rents to retail dealers.

The large wholesale dealers, notably those who distribute water-borne coal from the upper Lake ports, must store hundreds of thousands of tons of coal throughout the summer and fall for distribution throughout the Northwest during the winter season. Municipal storage has been suggested, but the nearest approach to such a scheme is the storage yards of the U. S. Government in Washington, D. C., administered under the Bureau of Mines.

The railroads are interested in storage, not only as a transportation problem, but because they are the largest users of coal, using 25 to 30 per cent of the entire output. The coal-mine operator is interested in storing as an operating proposition that will enable him to run his mine more days per year and per week than he is able to do under present conditions. The car supply at the mine during the early part is usually better than during the latter part of the week, and by placing coal in storage he can take advantage of any extra cars that may thus be on hand. The demand for the different sizes of coal varies with the seasons, and by having a storage pile he is able to supply this demand to better advantage. With storage facilities he can also fill out a day, even though the car supply may be short at the beginning or end of that period.

Since the problem concerns the producer, the transportation company, the distributor, and the consumer of coal, the benefits and the burdens arising from the storage of coal should be shared by all concerned. In ordinary times, the householder and the power-plant user are interested in storage merely as a matter of personal insurance against lack of supply; they are not interested in the economic advantages that may accrue to the mining companies and the railroad. Their interest must be stimulated by a share in any economic advantage that may come from storage. It is, therefore, advisable, and under normal conditions necessary, that a reduction in price be made during the spring and summer months to stimulate storage by the user. Many cannot pay the winter coal bill in a lump sum, and to provide for deferred payments the coal dealer usually adds 25c. per ton, which nets him about 6 per cent on



TRANSFERRING COAL FROM A CAR TO STORAGE

Flat-bottomed or gondola cars are particularly adapted to unloading by means of a grab bucket. Hopper-bottomed cars may be discharged from a trestle or into a pit and the coal picked up afterward.

coal sold at $5 per ton. During the war certain banks and municipalities proposed the loan of money with stored coal as security.

If the mine operator is to be benefited by storage through the more steady operation of the mines, he should expect to pay for this benefit by a slightly lower price during the summer and spring. If the railroad is to benefit, it should be allowed to differentiate in freight rates during the spring and summer. Also, where storage can be made only part way between the mine and the market, a through freight rate should be granted, permitting storage at the intermediate point without losing the advantage of the through rate to the normal market.

A shifting of only 50,000,000 tons from winter to summer will cause the production curve to be more evenly distributed, and this 10 per cent of the total production should be easily transferred from the winter to the summer months and be absorbed by the various industries that will be benefited.

2. Are all kinds and sizes of bituminous coal equally adapted to storage? All of the evidence available seems to show that the size of the coal, its freedom from dust, and the way in which it is piled are much more important elements in avoiding the inconvenience, and sometimes loss from fire, due to spontaneous combustion, than the choice coal from a certain mine or mining district.

All varieties of bituminous coal have been stored without spontaneous combustion resulting, and it is equally true that all varieties of coal have fired when stored, except possibly anthracite. This does not mean that all coals store equally well, as there is undoubtedly a difference in storage qualities in coal from different districts and even from mines in the same district. The kind of coal that is to be stored should be inquired into and, when possible, coals that are known to be particularly liable to spontaneous combustion should not be selected.

Origin Does Not Determine Storing Qualities

There is an erroneous, misleading, but widespread opinion that the locality from which the coal comes determines whether or not it can be stored. One frequently hears such remarks as "Eastern coals (meaning those from Pennsylvania and West Virginia) can be easily stored, but Western coals (meaning those from Illinois and Indiana) cannot as they are much more liable to spontaneous combustion." Both parts of this statement are too broad, for scientific research and the experience of those storing coal, as shown by the questionnaire sent out by myself, agree that while there are undoubtedly differences in different coals that affect their liability to spontaneous combustion and also to degradation, these differences are of less importance than the size of the coal stored, the care with which it has been prepared, and the way in which it is placed in storage. The answers to the questionnaire indicate that any coal can be stored, if it is properly piled, and that any coal improperly stored will heat and may fire.

There are not sufficient data available at this time to classify coals as to their liability to spontaneous combustion and it is doubtful if this ever can be secured, because liability to spontaneous combustion does not seem to be an inherent quality of the coal from any given seam, district, or mine; it seems to depend more on the size of the coal, its freedom from dust, to a less extent the amount of pyrite (sulphur) present and to a great extent upon the way in which it is piled.

The spontaneous combustion of coal arises largely from the oxidation of the fine material and dust and the confining of the resulting heat; consequently, the liability to spontaneous combustion in stored coal is greatly reduced and in many cases eliminated, if dust and fine coal can be kept out of the pile; if the coal is of such size and is so piled that there is a sufficient air-current throughout the pile to carry off the heat due to the oxidation that goes on, so that the material is not heated at any point to the ignition point; if the coal is so closely packed that sufficient air cannot come in contact with the fine coal to cause oxidation. It should not be forgotten that for every case of spontaneous combustion in a coal pile many instances can be cited where no heating has occurred.

Many consumers are afraid of spontaneous combustion, or of deterioration in the value of coal. For such amounts as are required by the ordinary householder, say from 10 to 20 tons per year, it can be stated positively that there is little or no likelihood of spontaneous combustion. Even if the coal heats slightly, this can be detected readily and the coal moved and cooled off without danger of setting fire to the building in which it is stored. Coal usually heats slowly, and there is little fire risk to the building in which the coal is stored, even in amounts up to 500 or 1,000 tons. The heating is easily detected by the odor given off from the pile a considerable time before there is any danger of actual combustion.

Clean-screened coal of a uniform size should be chosen for storage if possible. The larger and more uniform the lumps the better, so as to give an open-texture pile. Coal of one size is, therefore, better than a mixture of sizes. Sized coal should not be stored upon a foundation of fine coal.

The coal should be handled in such a way as to prevent breakage as much as possible. If there is a choice of coals for storage, the least friable should be chosen and the one in which there is the least fine material. Breakage not only produces dust but the fresh surfaces of coal oxidize more readily than the weathered ones. Coal should not be dropped upon a pile from a height, but the bucket or other receptacle should be lowered to the pile before being dumped. In every case of a fire in so-called lump coal investigated, it was found that the coal had been dropped through a considerable height, so that coal on the pile was far from being lump coal and contained a large amount of dust.

Size Segregation Must Be Prevented

While many varieties of mine-run coal cannot be stored under ordinary conditions, because of the presence of fine material and dust, such coal has been successfully stored in small low piles. In storing, mine-run coal should be piled in uniform layers and segregation of the sizes prevented. The piles should be as low as space will permit, carefully watched, and provision made to move the coal quickly if heating occurs.

In general, fine coal or slack is more liable to spontaneous combustion than clean-sized coal or, usually, run-of-mine. If stored, it should be carefully watched to detect evidences of heating. If practicable, a slack pile should be rolled with a roller so as to compact it as much as possible, and thus exclude the air, so as to give, as nearly as attainable, storage under water conditions.

Fine clean coal and slack have been successfully stored, particularly where closely packed, but the only absolutely safe way to store slack is under water.

Oxidation Produces Heat and Breaks Coal

Although experimentation has shown that the sulphur contained in coal in the form of pyrite is not the chief cause of spontaneous combustion, as was formerly supposed, the oxidation of the sulphur in the coal not only produces heat but also assists in breaking up the lumps, and thus increases the amount of fine coal in the pile. Any considerable rise in temperature, either from external or internal sources, promotes the oxidation of the iron pyrites and produces heat, and thus increases the liability of the coal to spontaneous combustion. It is wise to select low-sulphur coals for storage, if obtainable, but it must not be taken for granted that a low-sulphur coal will necessarily store well or that a high-sulphur coal will fire in storage.

3. What precautions should be taken in storing coal? It seems to make little difference in the liability to spontaneous combustion whether the coal is stored under cover or in the open, but under cover there is less degradation and weathering. Storage under cover is, of course, impracticable for large amounts. If possible, a place should be chosen that is dry and well-drained; or, if not drained naturally, drains should be provided about the storage pile, not underneath it, as a drain beneath a pile may admit air-currents sufficient to produce oxidation but not enough to keep down the temperature.

Storage Should Be On Clean Ground

Coal should not be dumped on ground covered with ashes or refuse of any kind because, in addition to furnishing flues for the admission of an inadequate air supply to the coal pile, such refuse often contains material that will assist spontaneous combustion. Furthermore, it is likely to become mixed with the coal and, when it is reclaimed from storage, the value of the coal is thus depreciated. If possible, the ground should be cleared of vegetation and leveled off, so that the reclaiming of the coal may be done as easily as possible and so that dirt and refuse will not be taken up by the shovel or other devices used in reclaiming. Some of the objections of firemen to using coal that has been stored are justified because of the dirt and other refuse that has been mixed with the fuel in taking it from the storage pile. A hard clay bottom thoroughly drained is desirable, if a concrete floor is too expensive. If possible, adequate space should be provided so that the coal can be moved to another place, if heating occurs.

Coal should not be piled around hot pipes, against a boiler or hot walls, around a chimney, nor in any place where it will be subjected to outside heat, because the liability to spontaneous combustion increases rapidly with a rise in temperature. Coal should not be stored above flues that permit small amounts of air to enter the coal; hot air, such as that from a sewer, is particularly to be avoided.

Coal should be so piled for storage that any part of the pile can be moved promptly if necessary. Coal should either be so piled that air may circulate freely through it and thus carry off any heat generated in the pile by exidation, or else it should be so closely packed that air cannot enter the pile; i.e., approximate as nearly as possible underwater-storage condition. Slack has been successfully stored in piles 10 ft. high by packing the coal as it was placed in storage by rolling, or by running a heavy truck over the pile.

Stratification or the segregation of the fine and lump coal into layers should be avoided, since an open stratum of coarse lumps provides a passage for air to reach and oxidize the fine coal, and the stratum of fine coal does not permit the heated air to pass off rapidly enough to keep down the temperature of the pile below the point of combustion.

Dumping at One Point Is Dangerous

Coal should not be dumped at one point at the top of a conical pile, since then the fine material stays in the center at the top of the pile and the lumps roll to the bottom. Many fires start near the top of the pile, where the fine coal has prevented the escape of the heated gases rising through the pile. In placing coal in a cellar or bin, the same precaution should be observed, for many fires are known to have started in the fine coal near the top of a sloping cellar pile and just below the window through which the coal was shoveled into the bin.

The depth and area of storage piles will be determined largely by the storage space available and the mechanical appliances to be used for storing and reclaiming the coal. Other conditions being equal, the deeper the pile and the greater its area, the greater is the difficulty of inspecting it and moving it quickly, if necessary. Hence a number of small piles, if practicable, are better than one large pile. Lack of space, however, usually prevents such spreading out of coal. It is impossible to advise exact heights, as much depends on the kind and size of coal and the local conditions, but the lower the pile the better.

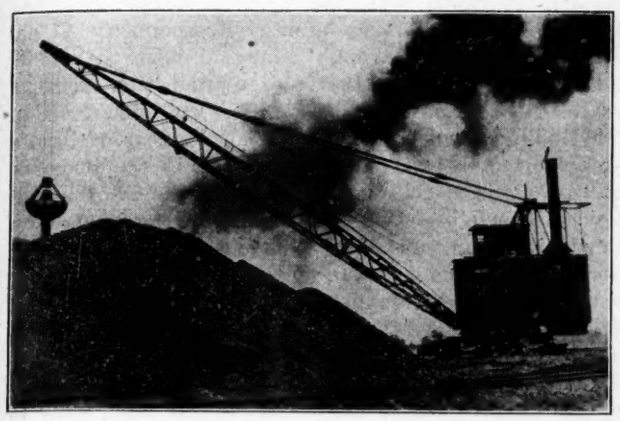
Inflammable material, such as waste, paper, rags, wood, rosin, oil, and tar in a coal pile, often form a starting point for a fire; every effort should be made to keep such material from the coal as it is being placed in storage. Timbers extending to the outside of the pile may permit the entrance of air. The admission of air into a coal pile around the legs of a trestle, through a porous bottom such as coarse cinders, or cracks between boards, etc., should be avoided. Coal should not be piled about timber posts.

Is Ventilation Advisable?

The effect of ventilating coal piles is a disputed point, but the weight of evidence in the United States seems to be against the practice. This may possibly be due to the fact that ventilation has been inadequately provided. Imperfect ventilation, such as is generally attempted in the United States, is certainly disadvantageous. Reports from Canadian practice favor ventilation by pipes placed close together in the coal pile.

4. Is coal that has been in storage inferior to freshly-mined coal? The heating value of coal, as expressed in B.t.u., has been shown, by the experiments of the U. S. Bureau of Mines and by Professor Parr at the University of Illinois, to be little decreased by storage and practically not at all with underwater storage. The opinion is widespread, however, but by no means universally held, that storage coal burns less freely than fresh coal. It must be remembered that sometimes the apparent deterioration is due not to any change in the coal but to the fact that the clam shell, or other reclaiming device, digs into the soil under the coal pile and mixes soil or refuse with the reclaimed fuel.

Experiments at the University of Illinois indicate that storage coal may be burned as readily as fresh coal in a stationary plant if a thinner bed is kept and the draft regulated properly. Some of the prejudice against storage coal is due to the weathered condition of the outside of the pile. The amount of degradation due to storage depends on the kind of coal stored and the way in which it is handled. The coking properties of some roads seem to decrease after storage and also the gas-making qualities, but coals vary greatly in these respects.



PUTTING COAL INTO STORAGE

The long boom on the crane together with its full-revolution sweep permits a large amount of coal to be stored from one point.

5. What does it cost to store coal? Like all cost data, the expense of storing coal has been difficult to obtain. In the preparation of a Circular 6, I attempted to gather cost figures under the following heads:

Cost of	Storing	Reclaiming
Overhead		
Labor		
Supplies		
Depreciation on mechanical equipment		
Interest on investment		
Rental on land on which coal is stored		
Insurance on equipment		
Insurance on coal		
Totals		

Not one of the many questionnaires sent out brought such itemized costs and, in most instances, the cost of storage and reclaiming were not differentiated. Most of the costs furnished included only labor and, sometimes, supplies, with no account of truckage, rentals, and other overhead and capital items.

The figures collected in 1917-18 showed a variation of from 1.5c. to 34c. per ton for storage and 2c. to 20c. per ton for reclaiming and a total variation for storing and reclaiming of from 4c. to 54c. The cost for storage and reclaiming by steam shovel or locomotive crane averages from 10c. to 20c. for labor and materials.

The Great Lakes Dredge & Dock Co. gave the cost of an underwater pit to hold 10,000 tons of slack built for the Standard Oil Co. of Whiting, Ind., as $3.30 per ton. The same company estimates the cost of unloading cars with a locomotive crane as 10c. per ton and the cost of reclaiming from the pit with the crane as 10c. per ton. At this particular plant, there is adequate track room so that the train of coal cars can be quickly unloaded; and in any storage scheme a saving in car demurrage should be considered as one of the items to offset any additional cost of storage.

Heretofore, probably the commonest type of storage and reclaiming device has been the locomotive crane; but with the newer type of hopper-shaped "battleship" coal cars, there are so many rods and braces that a clam-shell bucket cannot be used. One utility company that has previously used the clam-shell bucket for storing and reclaiming large amounts of coal says, "Very soon some other form of unloading device must be adopted where the coal is delivered in battleship cars." A Byers autocrane costing $6,000, with a capacity of 300 tons per day, is said to handle coal for 8c. per ton.

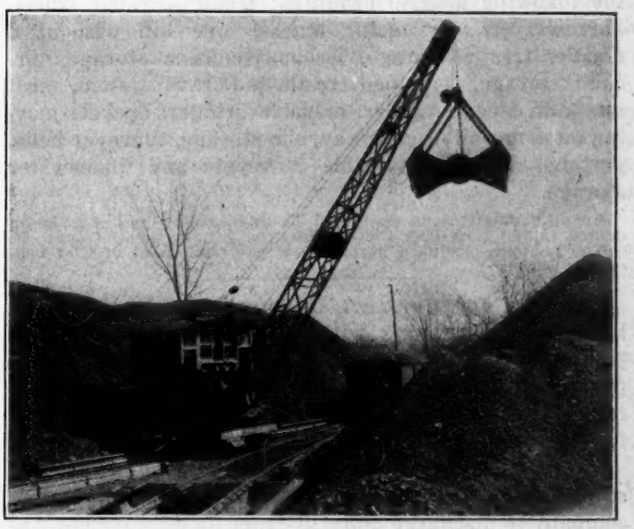
In 1917, the cost of storing and reclaiming with the locomotive crane was reported, by the Atlantic Coast Line, as 4c. to 5c. per ton; the same company reports that at present the cost with the same apparatus is 8c. These costs are below those generally reported. which varied from 5c. to 10c. per ton for labor and materials for unloading and a like amount for reclaiming. The Atlantic Coast Line reports the present cost of storing when the pile is gradually built up from a track laid on top of the coal as 40c. per ton. The cost of storage in the government fuel yards at Washington is given as 27.8c. per ton.

A Barber-Green type of storage plant of combined fixed and portable conveyors at Mooseheart, Ill., cost $4,600; the cost of storing and reclaiming is estimated to be 20c. per ton.

The Macdonald Engineering Co. of Chicago reports that four concrete silos with a capacity of from 1,000 to 4,000 tons each cost $10 per ton of coal for erection; that the labor costs of unloading is only ½c. per ton; and the cost of reclaiming even less than this amount. This company has a new type of rectangular concrete bin, which it claims can be built for $4 per ton.

The Creamery Package Manufacturing Co. estimates, for round silo storage bins of not less than 1,000 tons capacity, a cost per ton of coal: $3.50 for building the main structure; $1 for a roof and machinery house on top of the silo; $1 to $3 for foundation and track hopper; and $1 to $3 for elevating and conveying machinery; a total of $6.50 to $10.50 per ton of capacity. The company estimates $10 per ton as probably a fair price at the present time.

J. L. Pipe, of Quincy, Ill., in *Black Diamond*, for Jan. 31, 1920, gives the following costs for handling 15,000 tons per annum through a concrete silo pocket holding 400 tons. This silo is divided into four compart-



A TRACK HOPPER OR PIT IN A STORAGE PLANT

Hopper-bottomed cars may be discharged to the pit under the tracks, and from here transferred to storage. Such a pit has some advantages over a trestle.

ments and a 50-ton car can be unloaded into it in 45 min. at a labor cost of 78c. as compared with 45c. in 1918. In 1918, electric power for operating the plant cost 30c. per car as compared with 40c. in 1919. The pocket cost $3,600 in 1916; at present, the price would be $6,000. The machinery, in 1917, cost $976; the cost today would be $1,700. The total cost, in 1916, was $5,035; the present cost would be $8,000.

In the same issue of *Black Diamond*, the storage plant of F. Schroeder of Mishawaka, Ind., is described. The plant consists of four concrete stave-construction silos, each holding 300 tons and each costing $1,200 for construction. The coal is handled by a Godfrey monorail bucket and the entire plant cost $3,300, the estimated cost for handling being from ½c. to 3c. per ton unloaded.

C. A. Pennock, chief engineer, Western Electric Co., gives the cost of storage at 8c. in 1919, as against 5c. in 1917; the cost of reclaiming as 9c. as against 4c. in 1917, a total of 17c. against 9c. two years ago.

The Brown Portable Conveying Machinery Co. quotes prices for a portable machine that would elevate to a maximum height of 12 ft., equipped with an electric motor, $729; or, equipped with a gasoline motor, $779. To elevate 9 ft., the prices are $600 and $663, respectively; and to elevate 6 ft. $487 and $558, respectively. All of these machines have a 16-in. belt suitable for handling run-of-mine coal. The Godfrey Conveyor Co. quotes the cost as being 5c. per ton for unloading coal from cars to storage and from 8c. to 10c. for reclaiming from storage point to point of consumption. The Brown Hoisting Machinery Co. gives the following capacities and operating costs for locomotive cranes:

OPERATING COSTS FOR LOCOMOTIVE CRANES

Size, Tons	Boom Ft.	Maximum Capacity Cu.Ft.	Radius, Ft.	Price	Cost of Operation, Daily	Hourly Capacity: Coal from Pit or Flat Bottom Cars, Tons a	Hourly Capacity: Reclaiming from Pile to Car, Tons	Cost per Ton: Unloading, Cents	Cost per Ton: Reclaiming, Cents
30–40	50	70	45	$26,000	$25	75–125	100–150	3.1	2.5
15	44½	54	40–45	16,000	20	50–100	75–125	3.3	2.5
10	40	40	35	12,000	15	40–80	60–100	3.1	2.3

a Includes wages of operator, fuel, oil, waste, etc., 6 per cent. interest on investment, and 10 per cent. depreciation.
These figures are probably based on continuous operation and are seldom obtained in the actual practice of storing coal.

The method of storing coal may be included under the following general headings: Hand operated, wheelbarrows, etc., by motor trucks, side hill without a trestle, trestle storage, locomotive-crane storage, circular storage, combined trestle-and-crane system, mast and gaff, steeple towers, movable bridges, buckets moving on monorail or cableway, silo storage, conveyor belts, portable and semi-portable conveyors and underwater storage.

For the illustrations contained in this article *Coal Age* is indebted to the Link-Belt Co. of Chicago.
The photographs used herein show the equipment of that concern.—Editor.

Liability for Contract Interference.—One who by himself or conspiring with others induces another to break his contract of employment with a third person, to the injury of that person, is liable in damages for the injury sustained by him, whether the injury done was for the benefit of the wrongdoer or not.

Hence, if a coal company's officer, acting within the scope of his employment, wrongfully induced another company to discharge plaintiff from its employment, the coal company is liable to damages. *West Virginia Supreme Court of Appeals, Carter vs. United States Coal & Coke Co., 100 Southeastern Reporter, 405.*)

How Much Coal Does Ireland Have?

Needs Are Estimated To Be Five Million Tons Annually—No Coke Is Imported—Irish Coal Is Mostly Semibituminous

Consul F. T. F. Dumont, Dublin, Jan. 30, states that the coal production of Irish mines in 1919 was estimated at 95,000 long tons, the Castlecomer mines (Kilkenny) furnishing 60,000 tons, the Wolfhill mines (Queens) 14,000 tons, the Arigna mines (Roscommon) 17,000 tons, and the Slieveardagh mines (Tipperary), 4,000 tons. This is said to be the average production for some years. All of these mines, except the last-named, are in the Dublin consular district. Small deposits of lignite are reported to exist in Lough Neagh in the Province of Ulster and at Ballycastle in County Mayo. In addition, extensive peat beds exist throughout Ireland and a considerable amount of peat is cut for domestic use each year, but no estimate of the quantity produced is obtainable. To stimulate the mining of coal, a small grant was made by the Government a short time back, but no gain has been recorded as yet.

For the cheaper and better distribution of the coal mined an extension of 9 miles of railway from Athy to Wolfhill was completed during the past year, and there is under construction from Dunmore West Station, on a branch of the Great Southern & Western Ry., a 10-mi. railway to the Castlecomer mine. Enthusiasts predict that when these two railways are completed a great increase in output may be looked for from these mines. Various estimates, running as high as 300,000,000 tons, are made of Irish coal deposits that can be made commercially available. The coal is mostly of the English "anthracite" type.

Imports and Consumption

Irish needs in the way of imported coal are estimated to be nearly 5,000,000 tons a year. That this estimate is about correct is shown by the figures of imports for 1914 and 1915, which were officially reported at 4,470,833 and 4,578,627 tons, respectively. Official figures show that Belfast imported 1,321,434 tons in 1917 and 1,368,248 tons in 1918. Dublin imported 1,146,916 tons in 1916 and 1,217,516 tons in 1917. Outside of these two, Londonderry, Queenstown, Waterford, and Dundalk import considerable quantities, while Drogheda, Sligo, Galway, and Limerick are of minor importance in the trade.

The consumption of coal in Ireland is distributed as follows: Domestic use, 2,115,000 to 2,615,000 tons; industrial works, 1,400,000 tons; railways, 460,000 tons; gas works, 400,000 tons; miscellaneous, 125,000 tons. The item "Miscellaneous" includes electric-light plants. No coke is imported, but coke from gas plants is sold in the big cities. Peat is in use everywhere throughout the country districts. All of the coal imported is from Great Britain and is carried in English bottoms. Most of the steamers engaged in the trade are of small tonnage and carry no other cargo. Within the next year it is hoped that larger steamers will be available.

Both Belfast and Dublin quays are equipped with electric and hydraulic cranes ample in capacity to unload 150 tons per hour from each ship into railway cars alongside. Dublin has 12 electric cranes in operation, each of 50 tons per hour capacity, ranged three to each ship of any size, besides eight hydraulic cranes.

Canada's Coal Production Declines*

Decrease in Coal Output in 1919 Is 9.3 Per Cent, the Value Dropping 2.1 Per Cent—Canada Makes 8.9 Tons of Byproduct Coke to 1.1 Tons of Beehive as Against 5.4 Tons of the Former to 4.6 Tons of the Latter in the United States

EARLY estimates of the coal production during 1919 made in December underestimated the production during the last two months of the year. In the Province of Alberta there had been practically no production of bituminous coal during June and July and only a small production of lignite. These operations were but slowly resumed late in August, but during October, November and December, the production in this province exceeded the highest monthly rate previously reached. The total production of marketable coal during 1919 (comprising sales, colliery consumption and coal used in making coke, or used otherwise by colliery operators) was 13,586,300 short tons valued at $54,051,720, or an average of $3.98 per ton and was, with the exception of 1915, the lowest tonnage production recorded since 1911. The total value, however, on account of higher prices was but little less than that of the previous year, which had been the highest recorded.

Ontario, with no mines, produced two-thirds of a million tons of coke, an increase of nearly a quarter-million of tons. British Columbia's coke output declined over 52 per cent while Alberta made no coke at all, yet these are coal provinces. The gas from the coke ovens was equivalent to over one-third of the total production of natural gas in Canada.

The total production in 1918 was 14,977,926 tons valued at $55,192,896, compared with which the 1919 production shows a decrease of 1,391,626 tons, or 9.3 per cent, and $1,141,176, or 2.1 per cent in value. The total output of coal, including waste and unmarketable slack in 1919, was 14,041,655 tons, as against 15,460,385 tons in 1918. The 1919 production included 73,893 tons of anthracite, all from one mine in Alberta, 10,629,697 tons of bituminous coal, and 2,882,710 tons of lignite. The production in 1918 included 115,405 tons of anthracite; 11,636,190 tons of bituminous and 3,226,331 tons of lignite.

In Saskatchewan only has an increased production been shown in 1919. The largest decrease in tonnage was in Alberta, but the heaviest percentage decrease was in New Brunswick. The Nova Scotia production fell off by 116,246 tons or less than 2 per cent and has been exceeded in twelve out of the thirteen preceding years. New Brunswick's output decreased by 90,236 tons, or 33.6 per cent, though the 1919 production has been exceeded in the two preceding years only. Saskatchewan's production increased by 35,120 tons, or 10 per cent, and was the highest that has been reached in this province.

Although Alberta fell off 1,079,086 tons, or 18 per cent, the production was notwithstanding, higher than that of any previous year with the exception of 1918. The production during December, 1919, in this province was 742,482 tons, including 458,223 tons of lignite and 284,259 tons of bituminous and anthracite. British Columbia's production was less by 139,378 tons, or 5.4 per cent, and has been exceeded seven times in the past ten years.

The exports of coal in 1919 were 2,070,050 tons, valued at $12,438,885, or an average of $6 per ton, as against exports in 1918 of 1,817,195 tons, valued at $9,405,423, or an average of $5.17 per ton, showing an increase of 252,855 tons, or 13.9 per cent in quantity.

The total imports of coal of all classes in 1919, "entered for consumption" as recorded by the Department of Customs, were 17,308,837 tons valued at $61,160,799, as against imports in 1918 of 21,678,587 tons valued at $71,650,584. The record shows a slight increase in the imports of anthracite coal, but a decrease in the imports of bituminous coal.

The estimated consumption of coal based on production, exports and coal imported as "entered for consumption" amounted in 1919 to 28,768,099 tons, as compared with a corresponding consumption in 1918 of 34,771,832 tons.

The 1919 consumption included approximately 5,026,568 tons of anthracite; 20,858,821 tons of bitu-

*Extract from the "Preliminary Report of the Mineral Production of Canada During the Calendar Year 1919," by John McLeish, Chief of the Division of Mineral Resources and Statistics, Mines Branch, Canadian Department of Mines Feb. 28, 1920. Presented in person by John McLeish at the meeting of the Canadian Mining Institute, March 8, 1920. The figures as to the United States coke output in the subtitle are not a part of this report.

OUTPUT[1] AND PRODUCTION[2] OF COAL IN SHORT TONS, 1918 AND 1919

	1918				1919			
	Output	Production	Value of Production	Average per Ton	Output	Production	Value of Production	Average per Ton
Nova Scotia	5,836,370	5,818,562	$21,095,470	$3.63	5,785,929	5,702,316	$21,920,047	$3.84
New Brunswick	266,585	268,312	1,331,710	4.97	177,307	177,976	792,876	4.46
Saskatchewan	348,988	346,847	722,148	2.08	382,649	381,967	834,358	2.18
Alberta	6,126,443	5,972,816	20,537,287	3.44	4,990,726	4,983,730	18,184,429	3.72
British Columbia	2,879,099	2,568,589	11,494,681	4.47	2,703,845	2,429,211	12,315,610	5.07
Yukon Territory	2,900	2,900	11,600	4.00	1,200	1,100	4,400	4.00
Total	15,460,385	14,977,926	$55,192,896	$3.68	14,041,655	13,586,300	$54,051,720	$3.98

[1]Output includes waste and unmarketable slack. [2]Production includes sales, colliery consumption, coal consumed by operators in making coke, or for other uses.

IMPORTS OF COAL INTO CANADA, 1918 AND 1919

	1918			1919		
	Tons	Value	Ave.	Tons	Value	Ave.
Bituminous, round and run-of-mine	13,656,360	$37,291,057	$2.73	10,127,965	$24,750,717	$2.44
Bituminous slack.	3,237,067	8,351,639	2.58	2,228,197	4,814,388	2.16
Anthracite coal and dust.....	4,785,160	26,007,888	5.44	4,952,675	31,595,694	6.38
Total.....	21,678,587	$71,650,685	$3.30	17,308,837	$61,160,799	$3.53

minous and 2,882,710 tons of lignite. The 1918 consumption included 4,900,565 tons of anthracite; 26,544,936 tons of bituminous and 3,226,331 tons of lignite.

The total output of oven coke during 1919 was 1,160,470 short tons made from 1,880,541 tons of coal of which 854,835 tons were of domestic origin and 1,025,706 tons imported. The output thus averaged 0.617 tons of coke per tons of coal charged. The total coke used or sold by producers during the year was 1,133,680 tons (941,111 tons used by the producers and 192,569 tons sold) valued at $9,775,748 (partly estimated), or an average of $8.62 per ton. Of the total output 1,036,229 tons, or 89.3 per cent was byproduct oven coke and 124,241 tons beehive coke.

In 1918 the total output was 1,258,284 short tons made from 1,983,242 tons of coal of which 1,348,232 tons were of domestic origin and 635,010 tons imported, the output averaging 0.634 tons of coke per ton of coal charged. The coke used or sold by producers during the year was 1,250,744 tons valued at $11,035,195 or an average of $8.82 per ton. Of the total output 879,066, or 70 per cent was byproduct coke and 379,218 tons beehive coke.

Production By Provinces

By provinces the production was: Nova Scotia 580,433 tons; a decrease of 197,180 tons; Ontario 649,506 tons, an increase of 224,419 tons, due to the operation of the new ovens at Hamilton; British Columbia 100,356 tons, a decrease of 112,214 tons; no ovens were operated in Alberta, though a few hundred tons were sold from stock pile.

The ovens operated during the year were those at Sydney and North Sydney, N.S., Hamilton and Sault Ste. Marie, Ont., Fernie, Michel, Union Bay and Anyox, B. C. At the close of the year 587 ovens were in operation and 2,209 were idle. There were completed during the year 60 Koppers ovens at Sydney; 25 Williputte ovens at Sault Ste. Marie, and 30 Lomax regenerative ovens at Anyox, B. C. Of the total number of ovens 2,796 listed as operating and idle, 1,010 were of the byproduct type and 1,786 Beehive, Bauer and Bernard.

The exports of coke in 1919 were 14,809 tons valued at $129,703, or an average of $8.75 per ton, as against exports in 1918 of 29,612 tons valued at $223,629, or an average of $7.55 per ton. The imports of coke in 1919 were 383,374 tons valued at $2,405,740 or an average of $6.27 per ton as against imports in 1918 of 1,165,590 tons valued at $8,975,445, or an average of $7.70 per ton. The estimated consumption of oven coke in 1919 was 1,502,245 tons as compared with 2,386,722 tons in 1918 and 2,192,373 tons in 1917.

The recovery of byproducts at Sydney, N. S.; Hamilton, Sault Ste. Marie, Ont., and Anyox, B. C., included: Sulphate of ammonia, 11,765 short tons and tar 12,394,249 gal. as compared with 10,825 tons of sulphate of ammonia and 8,009,327 gal. of tar in 1918. The quantity of gas recovered in 1919 was 9,340 million cu.ft., or equivalent to over one-third the total production of natural gas in Canada.

British Labor Votes Against Direct Action

Decides, 3,870,000 to 1,050,000, Not to Call General Strike to Force Nationalization of Mines

ARTHUR S. DRAPER of the New York *Tribune's* European Bureau states that on March 11 the moderate forces in British labor won a decisive and highly important victory when the Trades Union Congress decided by a vote of 3,870,000 to 1,050,000 against the use of direct action or a general strike to force the nationalization of the coal mines.

Few labor organizations outside of the miners themselves supported the proposition to use force as a means of compelling the government to take over the mines. After the congress the leaders of the different unions said they were sure the minority would accept the decision and that there would be no break in the ranks of organized labor.

The decision is considered of profound importance because it means there will be no decrease in production in the British Isles through the cessation of work.

Two arguments against direct action which carried weight with the delegates were developed by J. R. Clynes, former Food Controller. He said that a general strike would be welcomed by Premier Lloyd George because he would then call a general election and the country would support the Premier. His other point was that direct action would be unconstitutional and political labor couldn't afford to take any unconstitutional action if it hoped to govern the country later.

Clynes thought the abandonment of direct action might mean delay in attaining the political objective of the Labor party, but it was much wiser, he thought, to progress along orderly, constitutional lines.

The decision means that the Labor politicians are in control of the situation, and that henceforth labor will fight at the polls and in Parliament. A moderate labor policy is bound to win many recruits here, they believe, because of the widespread dissatisfaction with both the Liberal and Coalition parties.

The supporters of direct action, notably Tom Mann, contended that it was merely industrial organization under a new name, and that everything labor had won had been through the use of the strike weapon or a threat to use it. He upheld political action, but said it was only supplementary to industrial organization.

Intensified political propaganda, therefore, will be labor's substitute for force. The organization of the Labor party is to be strengthened financially and plans developed for contesting the majority of the seats in Parliament at the next general election.

As there are nearly 6,000,000 organized workers—the largest number in any country except Germany—whatever they decide carries great weight with labor all over Europe. The decision emphasizes the point that there is little Bolshevism in the British labor movement, and that it is fundamentally moderate in spirit. Had the congress accepted the principle of direct action the whole country would have been thrown into confusion, and now there is a feeling of relief and optimism.

A decision in the matter of the injunction asked by the American Wholesale Coal Association in its case against the Railroad Administration has been postponed by agreement until March 19. It is hoped on that date to have all briefs ready for submission.

Canadian Mine Experts Discuss Problem of Industrial Independence

With Coal in the West and in the East, but with no Coal in the Central Provinces and Only Low-Grade Fuel Deposits in Manitoba and Saskatchewan, Canada Is Trying To Find a Way of Rendering Herself Independent of Coal from the United States

BY R. DAWSON HALL

CANADA is considering her resources today much as the United States did during the war. She is thinking, that is, not so much how the well-recognized mineral riches can be produced most economically, most numerously and most conservationally, but rather how some makeshifts can be adopted such as will make Canada independent of her southern neighbors. With a growing friendliness on both sides of the international border one would imagine that the readiness to accept international interdependence without uneasiness or jealousy would make rapid growth, but war is apt to suggest to any nation that friendships and mutual forbearances, however long continued, are apt at some time and for some mysterious reason to be severed incontinently. This is how Canada views the situation and the United States' War Industry Board exhibits the fact that the people in the United States are thinking along similar lines.

Need for a greater recognition of the financial straits overwhelming departmental officials as a result of increased living costs. Coal easily leads in Canadian output, having a value exceeding that of the combined product of nickel, silver, gold and zinc. Coal occupies an unhappy position in the eyes of all Federal Departments of Mines.

Furthermore, during the war the supply of coal in the central provinces of Canada depended wholly on the willingness of the citizens of the United States to deprive themselves of needed fuel in order to keep the people of Canada from a complete industrial breakdown and extreme domestic distress. The United States shared its fuel readily, as did Canada its other less necessary resources, but there was a constant feeling of dread and uncertainty as to whether the people on the southern side of the border and their Fuel Administrator would recognize their duty and fully perform it.

Canada is not without gratitude for the accommodation that was afforded, even though it was one that might fully have been expected of a good neighbor, a merchant with whom business had been done for many years, a co-belligerent and a blood relative. And yet Canada is still wondering if it comports with her dignity and her necessity to be so completely dependent on the friendliness and courtesy of her neighbor.

What will interest the mining people of Pennsylvania, West Virginia, Ohio and Illinois is that Ontario is in a measure actually solving the problem of peat utilization and that Saskatchewan and Manitoba are hopeful that they will be able to carbonize and briquet their lignite. If that can be done the domestic needs of Canada will be solved.

Whether the open-hearth and gas needs will be thus served depends on the sulphur percentage of these fuels while their employment for manufacturing purposes will depend largely on the temperature at which the ash contained will fuse. Inquiry does not seem to be directed into these channels. For the present domestic needs seem to provoke most comment.

The Canadian Mining Institute's Twenty-Second Annual General Meeting, which is the subject of this article, assembled at the King Edward Hotel, Toronto, Canada, March 8 and continued in session on the two following days completing its proceedings with an interesting visit to the works of the International Nickel Co. at Port Colborne on March 11.

It is perhaps best for *Coal Age* as usual not to weary its readers with the details of the metalliferous discussions but to pass them by as if they had not been introduced or considered. The president of the institute, D. H. McDougall, president of the Nova Scotia Steel & Coal Co., made the opening address and acted as chairman of the first session. He laid stress on the unfortunate situation in Canada in regard to the salaries of departmental officials which have not advanced with the increased cost of living. The services of such officials are getting to be almost gratuities to the public.

Nothing but *esprit de corps* and a spirit of social service, keeps these men doing their valuable work with such inadequate pay. The progress of industry, its contributions to the welfare of mankind, depend not only on the activity of business men but on the discriminating judgment and patient labor of those individuals who interpret pure science to the needs of industry. Without their help progress will be slow and haphazard. Yet the public cannot expect them to go on serving well without larger remuneration.

The staffs of the Canadian departments comprise men of large intelligence and high public ideals and it is a shame to make them suffer because of their devotion to the public weal. The public would recognize their services and reward them better in all probability were they less modest and less conservative in self appraisement, but if they spread their wares more ostentatiously, the wares would suffer though the public might buy more readily.

The Department of Mines had prepared a "Preliminary Report of the Mineral Production of Canada During the Calendar Year 1919," ready for the present session. In fact the meeting of the Canadian Mining

Institute is to be credited with hurrying this valuable governmental report and making it available to the public at an earlier date than otherwise would have been attained. In another part of this issue will appear that portion of the report relating to coal.

The author of the statistical report, John McLeish, chief of the Division of Mineral Resources and Statistics, did not point out the relative importance of coal to other minerals. Perhaps the following rearrangement of his table will give an idea how coal dominates in Canada all other minerals as it does in all well-favored mineral-producing countries.

PRODUCTION OF MORE IMPORTANT MINERALS IN CANADA 1919*

	Quantity	Value
(1) Coal, short tons	13,586,300	$54,051,720
(2) Nickel, pounds	44,542,953	17,817,181
(3) Silver, ounces	15,675,134	17,418,522
(4) Gold, ounces	767,167	15,858,749
(5) Copper, pounds	75,124,653	14,041,549
(6) Asbestos, short tons	136,199	10,658,946
(7) Lead, pounds	43,895,888	3,057,788
(8) Zinc, pounds	31,738,859	2,328,998
(9) Salt, short tons	148,302	1,398,968
(10) Gypsum, short tons	306,947	1,217,345
(11) Pig iron from Canadian ore, short tons	38,457	899,406
(12) Cobalt, pounds	336,185	840,463
(13) Petroleum, barrels	240,970	744,677
(14) Pyrites, short tons	177,487	522,704
(15) Arsenic, white iron ore, short tons	3,192	408,770

*From this table mineral waters, structural materials and clay products have been omitted.

Unfortunately for coal it finds itself always classed with non-metallic minerals and must take a place inferior to the metallic minerals which happen to have the benefit of a classification under a positive and not under a negative grouping. If we could have a classification by fuel minerals and non-fuel minerals, coal would stand easily and rightfully at the head of the list. Speaking politically coal might be unenviably placed at the head as a politically regulable mineral and all the rest as minerals which apparently can profiteer to their hearts' content, though during the war even these came into the regulated class.

These remarks are not, of course, a brief of Mr. McLeish's interesting observations. His summary of coal, it may be said, was important as it shows that the department's earlier estimates, those of Jan. 1, for the whole mineral production of Canada were in error about 3.6 per cent. Such errors are bound to occur.

To quote Mr. McLeish: "Sufficient allowance had not been made" in those figures "for the increased production and increased value of cement, clay, quarry and other similar structural material products. The coal-mining industry too, during the last three months of the year, responded quickly and extensively, particularly in the Province of Alberta, to the heavy demand for fuel."

Returning to the table of the "Production of More Important Minerals in Canada in 1919" it will be seen that the value of the coal produced exceeds the combined value of the output of nickel, silver, gold and zinc—nickel, silver and gold being respectively first, second and third in the list, and zinc being eighth.

The meeting of the afternoon of Monday was devoted to papers which had exclusive reference to iron and steel. In the evening illustrated addresses were given on "Mining and Smelting Operations of the International Nickel Co. of Canada," "Mining at Cobalt" and "Operations at the Alfred Peat Bog," the last being by A. A. Cole. J. C. Nicholl, general superintendent of the mining and smelting division, presented the first address named, describing the mines at Creighton, Ont., and the smelter at Copper Cliff. Interesting features emphasized were the covered way from the change house to the shaft and the heated room in which the men congregate before entering the cage. This provision protects them against the severities of the climate.

The tonnage per man at this mine is about 6 or 7 tons per shift. The methods of mining (shrinkage stoping) and the provisions for passing the mineral down to one of two levels, through a crooked shaft in the footwall, which lies at about 45 deg. to the vertical, were also described. When the ore reaches the level from which it is to be hoisted it falls into a large concreted chamber from which it goes to a measuring pocket and is dumped into a skip. The loading of the skip and its belling away takes only about 10 seconds.

In view of this address and the trip to Port Colbourne on the Wednesday following, it may be noted that the International Nickel Co. is the manufacturer of the well-known Monel metal, a natural alloy of copper (28 per cent) nickel (67 per cent) and other metals (5 per cent) made by direct smelting from Sudbury ores. Monel metal has the strength of steel and non-rusting qualities with maximum resistance to corrosion by acid and alkali and superheated steam. It furthermore takes and retains a high nickel polish, being used in mines and mills for screens, filter cloths, pump shafts and liners, signal wires and light wire ropes, also in power uses for water wheels, turbine impellers and blading, for feed-water pumps, valves and fittings on superheated steam lines. Consequently the interest in the plant is not confined to metal producers but is of direct interest to users of non-corrosive metals.

Two Plants Make Cheap Peat Bricks

Instructive and entertaining as the other papers proved, that of A. A. Cole on the "Alfred Peat Bog" was to coal men the interesting feature of the occasion. The Ontario Government, canvassing the coal shortage of the province, almost decided to build an Anrep plant for making use of the peat resources of Ontario. About that time, it discovered that the Federal Government had in mind experiments on a new plan proposed by E. V. Moore of Montreal. As a result the federal and provincial governments agreed to pool their experiments and divide the cost equally between them.

They proposed to make a thorough test of the older Anrep plant and of the untried Moore plan. R. A. Ross of Montreal, B. F. Haanel of the Mines Branch, Ottawa, were the authorities put in charge by the Federal Government, while R. C. Harris of Toronto, and A. A. Cole were given concurrent authority on behalf of the provincial government. E. V. Moore was appointed the engineer.

The plans tried are one of many "wet processes," the product being air-dried machine peat. Only the wet processes have attained success. They have been employed in Europe for the manufacture of millions of tons of peat. Their economy consists in letting the sun do the drying.

If the peat is dried by artificial means the expense of expelling the water turns peat drying into an unprofitable operation. The wet process consists of three operations—excavation, maceration and spreading. The peat bog is quite soft and spongy, an iron rod being easily pushed down in it for a depth of 6 or 8 ft.

and being quite readily drawn therefrom. There is about 88 per cent of water in the peaty mass, and this helps the process. Were it lacking, the water would have to be added; at least the addition of water would be advantageous.

The amount of maceration given to the peat determines the quality of the fuel produced, for the action increases the density of the finished product and hence its value. Unmacerated peat is a sponge-like body, whereas the peat made by maceration will have a specific gravity of 1.1.

Anrep Peat Machine Is Now Self-Moving

The peat is spread over the surface of the ground, being placed on areas as yet not excavated. It will dry in from two to four weeks. Near the end of the drying period it is turned over and piled in hollow piles so arranged that the air is drawn up through the center of the rough pile thus accelerating drying, which, however, is still not complete when the product is marketed. About 25 per cent of water in terms of the completed peat block remains. This means that 96⅔ per cent of the water is removed.

The Aleph Anrep Sr. machine has been bettered from the old construction by mounting it on caterpillars such as are in use for general farm-tractor purposes. The peat is cut by an Anrep bucket excavator working along the side of a ditch, which side is on a slope of 45 deg. When the material is excavated it goes to an Anrep macerator mounted on the same platform. This machine works much like a clay pug mill, the knives cutting up the excavated material and passing it along to a car from which it is taken by an endless-cable haulage system to the spreader on the spreading field. As soon as the car reaches the spreader it is stopped and discharged. After being re-engaged to the cable system which brought it to the spreader it is taken back round a track laid out in square form. Thus the cars arriving and returning are kept from interfering with one another.

The spreader lays down the macerated peat in about a four-inch layer and then with revolving discs cuts this mass into long narrow rows. The spreader is operated as a separate unit and in time it completes laying its section along the peat-spreading side of the square, that side being at right angles to the line of the ditch being excavated. As soon as the spreader has completed this work the rails are moved over and a new "spread" is started.

Moore's Machine Cuts Man Power 50 Per Cent

There is a considerable resemblance between the Moore plant and the Anrep plant just described, the difference consisting largely in the concentration of operations, the spreading and the loading being done with the same power unit. With the Moore machine, on leaving the macerator the peat is carried by an endless conveyor belt running on an arm of fabricated steel 150 ft. long which extends from the plant platform proper across the spreading ground and is located on the opposite side of the excavator from the ditch and runs at right angles to the line of the ditch. The plant itself travels on caterpillars, and the belt-conveyor arm, which of course needs additional support, is carried by a third caterpillar placed 100 ft. from the platform proper.

The spreader is operated by a chain-belt drive which runs through the belt-conveyor arm to which the spreader is attached. The same driver also operates the third caterpillar. The spreading in this case is in line with the ditch, for the spreading arm is at right angles thereto. As the arm is 150 ft. long the spreading field is just as long as the ditch and slightly under 150 ft. wide. To work to the best advantage, it is necessary that the ditch should be of sufficient length so that when the field is completely covered the first row spread will be ready for harvesting.

Much of this first row will already have been used in operating the plant so that the rest can easily be removed and the spreading of the first row started once more. While this is being done the remainder of the belt conveyor can be used to convey the peat from row No. 2 to the permanent track at the end of the conveyor, where it is delivered into small open cars and run in trains to the shipping platform.

D. H. McDOUGALL

President, Canadian Mining Institute for 1919, president Nova Scotia Steel & Coal Co. Mr. McDougall makes a pleasing address, is an extremely popular man and has done much to add action and purpose to an institution which formerly was devoted mainly to a study of mineral resources.

Mr. Moore's idea in this method of manufacturing peat is to make the handling of the material as far as possible mechanical, and in this he has succeeded to a marked degree. Thus the labor force required to run the old Anrep plant, which was in itself quite revolutionary in the substitution of mechanical operation for human labor, is from 13 to 15 men, while the Moore plant requires only seven. The obvious disadvantage of the latter is that it requires a long ditch to keep it operating continuously, but this, on the other hand will be overcome as the length of the arm is increased. The capacity of each plant is approximately six tons per hour and can be operated to best advantage two shifts per day.

In what has already been said no reference has been made to the cutting of the peat into blocks. The reader would judge from the description given that the material was in long strips the full length of the spreading field. It has been found possible by the use of a deeply grooved roller, which is propelled by two men along the spreading row, to cut the peat strips into blocks. The work only takes a few minutes and is most satisfactorily done. It leaves the peat in blocks of equal width.

The Alfred peat bog is situated on the main line of the Canadian Pacific R.R. between Ottawa and Montreal. While it is quite large, there are many others which could be advantageously used for the production of peat bricks. It was chosen because it had already one working face prepared and because the drying fields were already drained.

An analysis of the peat contained in a portion of the bog being worked when all the water has been driven off is: Volatile matter, 69 per cent.; fixed carbon, 24 per cent.; ash, 7 per cent., which the reader will notice totals up to 100 per cent. The heating value per pound is 9,300 and 9,500 B.t.u. As has been stated, the peat actually contains, as delivered to the consumer, about 25 per cent of moisture. Unfortunately the water in the peat is largely of a colloidal nature, and it would be hard, if not impossible, to squeeze the peat dry in a filter press.

This Surely Is a Seasonal Industry

The amount of peat which can be produced in a year depends upon the length of time during which the drying operations can be carried on. The season at Alfred, which is similar to that of southern Ontario, is from 100 to 120 days long. The peat is being sold f.o.b. cars at the Alfred station in carload lots at $3.50 per ton, the price allowing a reasonable commercial profit over and above the cost of production, and including an allowance of 10 per cent. for depreciation, and an equal provision for amortization.

It was interesting to note that when it was known that this peat was available for sale, there was a considerable demand for it by dealers in nearby towns, who had become acquainted with the merits of the peat manufactured in prior experiments. A ready market was obtainable in Ottawa and Montreal for many such machines as those built for the peat committee.

It is not supposed that peat fuel will entirely replace coal even where the bogs are most plentiful, but there are certain uses in which it has advantages over coal, and if it is used for these purposes, it will materially help the fuel situation. Peat can be used to advantage for open grates in cooking ranges, but is not recommended for use in domestic furnaces except in the fall and spring, when light fires are needed, or in conjunction with coal when a coal fire has to be hurried.

Will Try Out a Small Three-Man Machine

The program laid out for the coming season is to work both plants to capacity, marketing the product and showing thereby what can be done on a commercial basis. It is also proposed to test out a small three-man machine which is now being built and which it is hoped will make available a great many small bogs of comparatively shallow depth throughout Ontario and Quebec that would be too small to endeavor to work with the larger machines.

Coal mining interests filled the entire morning session of Tuesday, March 9, the session opening with the suggestion that a coal section of the institution be formed. The failure of the iron and steel section to presage a strong self-perpetuating body made the forming of a coal section seem to most of those present an undesirable development, and the question was left for settlement at some later period. The Canadian Mining Institute army does not seem sufficiently large to divide itself into battalions.

Following this somewhat listless discussion J. T. Stirling's paper was read by Mr. McEvoy in the absence of the author. With the title of the "Coal Mining Industry in the Province of Alberta" it gave a general account of the coal operations which are the hope of the province and are already the quickener of its activities. With a trillion tons of coal and other bituminous minerals below the soil (1,059,975,000,000 tons to be exact) Alberta does not expect soon to be at an end of her wonderful resources. This is what Alberta did with her coal in 1918 and 1919:

Tons Sold in	1918	1919
Alberta	3,440,154	2,991,110
British Columbia	101,189	95,461
Saskatchewan	1,372,439	1,115,329
Manitoba	511,168	314,290
Ontario	629	308
United States	133,276	121,212
Total	5,558,855	4,637,710
Produced	6,148,620	5,022,412

It was stated that Manitoba and Saskatchewan were not favorably inclined toward Alberta coals, as the freight rates were high, especially in Manitoba, which is easily reached from the United States owing to the propinquity of the Great Lakes.

In 15 years 500 mines had been opened, 324 of which have been abandoned, the near-hand coal having been mined out. A 64 per cent death rate in so short a period of time is quite large. W. J. Dick not being present, his article on "Fuel Problems of Western Canada" was not presented. F. W. Gray, editor of the *Canadian Mining Journal*, read his paper on the "Coal Supply of Canada." Mr. Gray is strongly of the opinion that Canada should arrange to make use of none but Canada-mined fuel. A synopsis of his paper will appear later.

A. McLean read an article on "Lignite in Saskatchewan" and was followed by E. Stansfield with an address on the "Principles and Practice of Fuel Briquetting." Mr. Stansfield is making preparations to briquet lignite in the Estevan district of Saskatchewan, possibly near the town of Bienfait. He has made a most careful investigation of the briquet factories of the United States and finds that it is impossible to reconcile the many different theories as to the right process of briquetting to be adopted.

He found that about half the United States factories were using asphalt as a binder, while about another half were utilizing coal tar for that purpose. Sulphite pitch needs drying and does not make a waterproof briquet. It has the advantage, however, that it does not create a smoky fuel if used to bind a fuel that is smokeless.

The Saskatchewan lignite will be carbonized and so will give no smoke. It would be preferable not to bind it with anything that would make the fuel smoky. It is unfortunately the fact that a carbonized body like coke is full of cell spaces and has, therefore, an abnormal thirst for binder. This insatiable thirst is expensive and results in obtaining a fuel as objectionable as a soft coal.

Not only is there a division of opinion as to the right binder to use but there are many other strong differences among experts. Some would have small rolls and some big. The small rolls are opposed because they have a rubbing action and the large rolls are favored because they give a longer period of contact. The question is not settled, any more than is the one as to the advantage of adding steam or water to the

mix. Some say that steam makes a better briquet, but it is answered that a briquet containing water is apt to be porous and drink up water if exposed to the air after it has been dried out. Mr. Stansfield was not disposed to act as arbiter on the questions raised regarding the proper course to pursue in briquetting coal or coke.

He said that the largest briquets made in America weighed 16 oz. and were fabricated for Italian consumption, work on such fuels being stopped during the war. The largest briquets made for use on the continent of America weighed only 13 to 14 oz. It must be remembered that wear makes a great deal of difference in the size of the briquet the rolls will make. As the rolls wear, the "fin" around the egg briquets gets larger, and the roll has to be turned down, thus lowering the capacity of the recess in which the fuel is compressed. Eventually the roll has to be scrapped and a new roll substituted, but prior to that time the briquets are below standard size and weight.

The "fin" around the egg is knocked off and can be turned back into the mixer but, of course, it is desirable that the fin be reduced to its minimum dimensions.

Briquets made from the fine coal screened from the lump piles at storage yards make an excellent product, for there is 20 per cent less ash in such abraded material than in the lump coal, the abraded particles being from the purer part of the coal. Briquets, however, made from the fine coal produced at the mines are high in ash as the slack or sludge is dirtier than the lump coal.

Why Not Use More Sulphury Coals for Gas?

Dr. Henry Mace Payne, in the short discussion that followed, stated that the tendency was to demand the best coal for any given purpose rather than to choose a somewhat cheaper coal that would suit the need if correct handling were provided. Coal having 1 per cent sulphur or less is getting quite scarce, and gas plants should be willing to accept coal having 1½ per cent sulphur or even ¾ per cent, which can be utilized quite readily, provided proper purification plants are installed. In fact Dr. Payne declared that if the sulphur was of the right kind even 2 per cent was not too large a percentage for use in gas manufacture.

For lack of time M. A. McInnis' paper on "Coal Transportation" was delayed till the afternoon session. At the luncheon tendered to the visiting members Mayor Church, President McDougall and Bradley Stoughton of the American Institute of Mining and Metallurgical Engineers spoke, the latter felicitously comparing the balmy air and snowless streets of Toronto with the bleakness of New York City, where, as he put it, first-floor residents were unable to enter their apartments by reason of the snow.

In the afternoon a number went to the new plant of the Goodyear Tire & Rubber Co., while others attended the oil session, the patient coal men who participated being privileged to hear the paper of M. A. McInnis, which in part was as follows:

"The transportation of coal into Canada is such a large factor in its cost to the consumer that our facilities for handling and the future adjustments of freight rates will largely govern the distribution of this commodity and its cost.

"We in Canada are entirely dependent on the United States for anthracite. Our consumption of hard coal last year reached 4,782,000 tons. We are dependent on the United States for a bituminous coal supp'y of 17,275,000 tons, or over one-half of our requirements. At the present rate of importation of anthracite and bituminous coal combined, totaling 22,000,000 tons yearly, or 60,000 tons daily, it is to be expected that from time to time we shall have to deal with abnormal conditions, and for these and the ordinary increase in population and consequent increased coal consumption, we should be prepared.

Great Growth of Canada as Coal Market

"The total coal consumption in Canada last year was 35,000.000 tons, or about 4½ tons per capita. When our population reaches 10,000,000—a number we may expect by 1925—our consumption will have increased by 9,000,000, making a total of 44,000,000 tons yearly. Unless our home production can be increased materially in the meantime, we will be forced to import about 27,000,000 tons yearly by 1925, or 74,000 tons daily. Of our total coal imports 42 per cent is water-borne, 46 per cent carried by rail, and 12 per cent by ferries."

Mr. McInnes said that there were 123 storage plants for coal on the St. Lawrence and Great Lakes, capable of handling millions of tons a year. He added:

"Saskatchewan, Alberta and British Columbia do not have to import fuel to any extent, the total imports from the United States being less than 25,000 tons yearly. The mine outputs of these provinces total nearly 8,000,000 tons. British Columbia exports about a million tons of its product each year. The enormous coal resources of this trio of provinces is estimated at about twelve hundred billion tons, and their value is just beginning to be realized.

"The territory at the head of the lakes, including Manitoba, imports 3,000,000 tons a year, of which 2,000,000 tons are taken by the railways. The greater part of this coal is carried by rail from the Pennsylvania mines to Buffalo and other lake ports, then by water to Fort William and Port Arthur—where the Canadian Pacific R.R. and the Canadian Northern R.R. have large storage and discharging plants.

Water Hauls Make Coal Inexpensive

"It is here loaded into cars and shipped as far west as Winnipeg and other points in Manitoba. Although this territory is about 1,500 miles removed from the mines, the water haul, with its comparatively low freight rates, keeps the price of coal in Winnipeg within $1.50 a ton of the price in Ontario and Quebec.

"Our greater difficulty in importing coal by rail is at Niagara, or what is known as the 'Niagara gateway.' The Canadian roads at this point are unable to accept as much freight as the United States roads can deliver. For the greater part of the year our roads can handle but 100 cars a day. Owing to the comparatively short haul from the Pennsylvania mines to the cities and towns of southwestern Ontario, or the territory bounded by a line drawn from Niagara to Toronto, and west to the shores of Lake Huron, these points have depended on rail coal rather than on the development of water facilities on Lake Erie and Lake Ontario. Toronto, Hamilton and other points in this area should eventually take more coal by water, for which adequate unloading and storage facilities will have to be provided. Last year central Ontario imported 10,000,000 tons of coal of which the railways consumed 6,000,000 tons."

The speaker said that the maritime provinces had no

serious difficulty in providing themselves with coal. Last year Nova Scotia, New Brunswick and Prince Edward Island imported 175,000 tons of anthracite from the United States, nearly all by water. These provinces produce 6,000,000 tons of coal yearly.

As a means of successfully meeting the coal problem the speaker suggested: "Let the bituminous coal operator give some concessions to the early buyer as the anthracite operators do. The railways quote lower freight rates in summer, and if a price differential is provided the consumer will be quick to take advantage of it, and will provide storage room at points where the coal is used, thus reducing the cost of rehandling. Educate coal users to buy early."

"There Are Mines That Make Us Happy"

Tuesday evening, under the shepherding of Col. J. J. Penhale, most genial of presiding officers, was held the annual smoker. With him was to have been associated G. G. S. Lindsey, but much to the regret of the assemblage he did not feel it was safe to be present as he was none too fully recovered from a surgical operation. The song sheet had a parody on "Smiles That Make Us Happy" which was sung with gusto and which ran:

"There are mines that make us happy,
  There are mines that make us blue,
There are mines that steal away the tear-drops
  As the sunbeams steal away the dew;
There are mines that have the ore-shoot faulted,
  Where the ore's forever lost to view;
But the mines that fill my heart with sunshine
  Are the mines that I sold to you!"

"Foghorn" McDonald, beloved of the North County, in stentorian voice rendered "Drill, Ye Tarriers, Drill" to the chorused accompaniment of all present. Eddie Collins, of Cobalt, after many calls, narrated some French-Canadian stories in inimitable manner while songs and the cries of the three colleges represented filled in the interstices in the program.

A Metal Day Followed by Pleasing Banquet

Wednesday morning's session covered the problems of mine assessment for taxation purposes, prospecting especially in Manitoba, Saskatchewan and Alberta, particularly in the first-mentioned province, the sources of cyanide and "Engineering Standardization, with Special Reference to Standardization in the Mining Industry"—this last by J. B. Porter.

In the afternoon the subjects treated were the Quebec asbestos deposits, nickel coinage, lost placers of Ontario, methods of mining and milling in the Cobalt, Gowganda and Kirkland Lake districts, the geology of Silver Islet and vicinity and the minerals of eastern Ontario.

The banquet in the Pompeian room of the King Edward Hotel lasted till a late hour, there being an unusually long list of speakers, including the Lieutenant Governor of the Province, Harry Mills, who is Ontario's new Minister of Mines; E. P. Mathewson, Henry M. Payne, Bradley Stoughton, D. H. McDougall, O. E. S. Whiteside, R. Dawson Hall and F. W. Gray. That does not entirely exhaust the long list. E. A. Collins recited; many furnished songs; so it was at a late hour that the goodly company retired.

The United States contingent divided among them the subject of the possibilities of the Canadian Mining Institute filling at Ottawa the functions which are being performed by the American Mining Congress at Washington, and in lesser degree by the American Institute of Mining and Metallurgical Engineers at the capital and in New York. The Institute, according to the United States visitors, could give a composite view of the mining industry's opinion to the legislators at Ottawa who do not understand mining and are quite willing to receive information from a reliable source.

The Canadian Mining Institute has ventured only a little way into the waters of political relations. It has regarded the political mess as a dirty matter to mix in. So was the war—a mess from which we may pray ever to be delivered. But the good citizen believed that just there his duty lay, pleasant or unpleasant, and he did his duty as he saw it. So with legislation. It is a duty of the good citizen to take part in its direction and his entry into legislative matters will purify it as does the entry of good citizens into the ranks of the army. Politics will always be unworthy, if worthy men stay out, as an army will not be reputable if honorable men fail to accept service in it. Strange to say, we do not see the army with just the same eyes that we do politics.

The Canadian Mining Institute is beginning to take views on political subjects, as is evidenced by the vote on introducing a pure 5c. and 10c. nickel coinage, the paper on legislation relative to the certification of engineers and the address on the need for mining laws and the abolishment of mining regulations in the Prairie Provinces and on the assistance to be extended by the government to prospectors.

Some of Political Subjects Discussed

One might also refer to the plea for the free admission of mining machinery, especially for such as would make oil-shale distillation feasible, and to the article relating to assessment of mines for taxation. The salary question in the mining department repeatedly recurred. The institute is chatting politics almost as often and as glibly as geology, but not at Ottawa. It is today gossiping politics at Toronto, Vancouver, Montreal and, let us add, Fort William. Shortly, it may be predicted, it will be speaking so as to be heard in Ottawa.

It will not be lobbying but rather counselling. It will forbear to threaten or cajole, but it will advise and instruct, and who shall say that its voice will not be heard with respect? Politics is like sickness or war. We cannot avoid anyone of the three. They are inevitable. We may regret them, but we must meet them nevertheless, and may we meet them like men!

The British precedent which restricts the activities of technical institutes solely to inquiry into matters of scientific concern has been long followed in the United States and Canada. The march of events has almost compelled in the Republic a revision of former standards. It is not unlikely that it will have the same effect in the Dominion, and if the Canadian Mining Institute does not lead, another body must undertake that function.

The trip to Port Colborne drew about 98 participants. The International Nickel Co. here receives nickel-copper matter and transforms it into nickel shot, blister copper and nickel oxide by various processes, in which roasters, converters, openhearths, filter presses and bleaching tanks all figure. The plant is built in a peat bog which is, however, only one to two and a half feet thick. Ontario has large peaty areas, and if the peat can be briquetted cheaply, there are great possibilities to be found in this low-grade fuel.

COAL AGE

PUBLISHED BY McGRAW-HILL COMPANY, INC.
TENTH AVE. AT 36TH ST., NEW YORK
Address all communications to COAL AGE

Volume 17 March 18, 1920 Number 12

Where Angels Fear to Tread!

The Tidewater Transshippers' Association is undertaking a serious problem when it proposes to classify the coal handled at Tidewater, and we venture a word of warning against any too confident application of the principles which we understand have been adopted as a basis for this assignment of coals to the pools which it will control.

It is reported that "classification shall be made upon the basis of analysis for volatile, ash and sulphur, as to steam coals; volatile, ash and sulphur, yield of gas per pound and illuminating power, for gas coals, *with such variations as shall be determined* by the executive committee ——." The italics are ours; we use them because this part seems to us the most important part of the whole quotation. In fact, unless the committee determines on important variations, and that right at the start, we venture the prophecy of dark and troublous days ahead for the new Association.

First let us consider the case of steam coal. Has it occurred to the Classification Committee that the character of the volatile matter may be vastly more important than the percentage? Have they realized that 15 per cent of ash, if of reasonably high fusing temperature, may actually cause less loss than half that much ash which clinkers badly? Have they altogether forgotten that heating value, other things being equal, is what we want under the boiler and that sulphur, though important at times, is of far less significance?

In other words, does anyone for a minute seriously believe that the percentages of volatile, sulphur and ash are a satisfactory basis on which to classify steam coals? If he does, we seriously doubt the value of his work.

And again, consider the gas-coal proposal. The same points we make for volatile and ash in steam coal apply here also. Especially is the character of the volatile matter of great consequence; and "the yield of gas per pound and illuminating power" are a feeble reed on which to lean for support if one is to bear the weight of righteous indignation which the gas men will heap on him who makes this classification.

By what standard system does the Committee propose to fix upon this "yield of gas" and its "illuminating power?" We can refer them to methods, yes, a dozen of them; and we'll guarantee, too, that any one of the dozen will give a wide range of results for "yield" and of "illuminating power." These results depend upon temperature, and rate of heating, and length of heating, and pressure in the retort, the barometer, and the direction of the wind. And sometimes we even get to think that the day of the week and the color of the hair and height of the last man we met before we got to the office that morning are factors. In any event a multitude of factors beside the coal sample enter to render such tests of little or no value for a basis in pooling.

We fail to find any mention of the coking characteristics of this gas coal, but we assume this will be one of the "variations." Perhaps also the British thermal units in the total volatile matter may be noted after a time when the Committee learns from the gas men that only about a dozen places in the United States, and practically none in foreign countries, any longer worry themselves about the illuminating power of the gas. And moreover where illuminating power is required by law or rule it is water gas, not coal gas made from bituminous coal, which is used to meet this standard. We noted in *Coal Age* of March 4 that these tentative principles were adopted, "only one vote in the negative being recorded." We wish to extend our congratulations to him, whoever he may be, who saw the weakness of this system. We trust that his counsel will prevail before the classification committee in order that the new Association may not start out with the handicap of a poor system for assignments to its pools. In this connection we would suggest a careful reading of the opinions reported by our correspondent in the issue of *Coal Age* of March 4 pages 446-50.

Are Our Public Utilities to Serve As Flunkies to Luxury?

When we are told that the public cannot stand to pay a fair price for coal, or an adequate transportation rate, we naturally ask if the public utilities are to continue to stand in deference to the comfortably seated luxury industries

For Coal Mining Is Relatively Stable

SEASONALITY is a misfortune of the farming industry, and the lumber trade partakes of the same infirmity. For this reason from the first the farmer and the woodsman have been attracted to the coal industry as being more stable than the one to which they belonged. It would be hard to tell the farmer that mining is a seasonal occupation. Its summer idleness

does not begin to compare with the long winter slackness of the farm. In sowing time and in harvest the farmer is busy, the rest of the year he often merely cuts wood for his fire, takes milk, eggs and potatoes to market, beds down and feeds the cattle and horses and perhaps butchers some hogs.

Many farmers manage, by working in other trades, to make the year show a favorable balance in the profit and loss account. Nearly all help to maintain the township highways; many haul lumber, logs and stone; some work in small mines located on their own farms. But on the whole things around the farm usually drag along so slowly (at least they did before the war) that the banker who holds the mortgage wonders how soon he will have to foreclose. When the mines are opened, the farm laborer sees his first opportunity to have reasonably steady work. If he combines farming with mining he can make the whole year productive but even if he does not, mining work will give him bigger wages and steadier time than the work of the farmer.

The lumber jack in recent years has worked more steadily than before. Formerly no hauling was done except in the winter. If not located on a large stream, the mill was idle in the summer unless a freshet made it possible to float down logs. In the depth of winter, the logpond froze, and the mill was shut down though the woods might be busy. The sap only ran for a few weeks, and such timber as had to be spudded could only be cut during that short season. The railroad has improved the transportation problems; the thawing of the logpond by steam has helped to make winter milling regular while the decrease in the woods that are used for tanning has made cutting less seasonal. Nevertheless there is still a degree of irregularity from many causes, for there is still inequality of demand and seasonal difficulties such as those arising from high-water, excessive snows and rains. Under the old conditions there was a bad-load factor, as George Otis Smith would term it, in the lumber industry, and the workmen quite often gave up the lumber camp for the coal mine just because mining was more stable.

Why Waste Time With the Muck Rake?

Bunyan portrayed a man bowed over a muck rake, so intent on his foul work that he missed the vision beyond. If we would only look up, the vision of restored transportation service would be seen beckoning us to a brighter national existence.

In fact mining is about as stable as most country employments. All have their slack times and their times of activity. The clay works, for instance, find the fall is a period quite usually accompanied by slack work.

The study of stabilization is a large one. Perhaps it is well that the experiment is first being tried on an industry that is comparatively stable—namely coal mining. It is questionable whether it should be made wholly stable, whether farming and coal digging should not be made the two balls on the governor whereby the engine is kept in uniform rotation. If the railroad problem of transporting to market did not rise to the mind one would be inclined to urge that the mines might advisedly close entirely in the summer for say two or three months giving the farms the full benefit of the labor of the mine worker.

Certain it is that when he is growing wheat, grain and potatoes he is not subjecting the country to a financial drain as he is when he is idle. What would mine workers say to this proposition? This; that the pay obtainable on the farm would hardly meet with their ready acceptance. The miner may deplore that the bright skies and open air of the farmer are not a part of his lot, but he does not want the farmer's pay. If it had not been for the frugality of the farmer in most coal regions that worthy would not have been able to live at all through the unprofitable years that preceeded the war.

A Good Precedent

ONE OF THE most successful, hardworking technical societies of this country is the American Society for Testing Materials. Practically all of its activities are carried on through committees, and these committees are organized in a way that affords a splendid precedent for the consideration of the coal man. It is provided by this society that any committee dealing with a subject having a commercial bearing must be made up with either an equal number of representatives of the producing and the consuming interests, or that the consuming interests shall predominate in numbers, always, however, with the consent of the producing interests. The result of this policy has been that specifications for materials and proposed standards adopted by this society find wide acceptance as the basis for commercial work. It is proposed by the American Institute of Mining and Metallurgical Engineers that a committee be organized to strive for stabilization of the coal business. The basis upon which this committee should work has, of course, not yet been developed, but we believe that any measure of success which will be attained by it can only come after it clearly recognizes that a co-operation of the coal-producing and large coal-using interests of the country is essential if any recommendations are to secure general agreement and adoption.

We see no reason why the coal man should not welcome a frank study of these problems of the seasonal aspects of the industry. We do not agree that the coal business is more largely seasonal than many others, but anything that will reduce the seasonal variations should be welcome. We trust that the American Institute of Mining Engineers will properly constitute its committee so that all aspects of this important commercial problem will be represented. So constituted a real improvement in conditions may be confidently expected.

DISCUSSION *by* READERS

EDITED BY JAMES T. BEARD

Shifting the Worker

Letter No. 3—I am glad of the opportunity to express my view in regard to the situation presented by the letter of A. H., *Coal Age*, Feb. 12, p. 327, regarding his failure to secure the transfer he wanted to another position that would give him more pay and be better to his liking. At first sight, it would seem rather hard that the request of this worker to be transferred could not be granted; but we must defer judgment until we hear the other side.

It frequently happens that workmen try the patience of their foremen and superintendents, to the limit of endurance, and cause them to say and do things that seem unfair. It's all right for an outsider to say what a superintendent should do and what he should not do; but, believe me, a brief visit to the superintendent's office will often give one a different opinion on this matter.

Workers are not all alike; they differ in many respects. In my experience, the man who tries to make his foreman or superintendent believe that his services are being solicited by some other company rarely impresses either of them with the value of his services to themselves. On the other hand, the man who moves about is generally able to pick up better jobs, and secures more speedily the kind of work he desires. As a matter of fact, I would rather see the mine shut down than to depend on the services of a dissatisfied lot of men.

TRUE ATTITUDE OF SUCCESSFUL SUPERINTENDENT

As superintendent, I believe in throwing in my lot with that of the men in my charge, and making it as cheerful for them as conditions will permit. However, it is true that there are workers who will take a mean advantage of a foreman or superintendent thus minded, and impose on his good nature, unless they are suitably checked. The average mine worker always looks at his own interests. While it is true that a man should not allow his family to suffer, in order to please a whim of his foreman or superintendent, it is too often the case that the worker himself is selfish. It is human nature to be selfish. Indeed, every thought and every action terminates in that one idea of self. We all worship and bow down to the God of Self.

In the case before us, the worker states he had only been at the substation a short time. The chances are that the superintendent had to put a man with him for a couple of days to show the newcomer his duties. Then, this being done, the superintendent thinking all is moving smooth again, is suddenly confronted with the request for "another job." So it goes, when a new man is broken in and finds his job a little harder than he had supposed, he either threatens to quit, or else he stays at home when he is most needed at his post and his absence delays the work.

Speaking of selfishness, there are no doubt selfish superintendents and selfish foremen; but this kind do not last long and never meet with much success in the handling of their men. It hurts none of us to give the helping hand to a fellow worker, providing it is done in an honest and whole-hearted way. In the present instance, however, it would be unjust to pass an opinion on the action of this superintendent in refusing the request of his man to be transferred from the substation into the mine where he was wanted to bond rails. Before passing judgment, let us wait to hear from the superintendent, who, if he is the man we may suppose, will not permit this worker to get away without letting *Coal Age* readers know the exact conditions in the case. RICHARD BOWEN.

West Pittston, Pa.

Deal Squarely with the Miner

Letter No. 1—Having been a constant reader of *Coal Age* for eight years past, or since its first issue came off the press, my feelings for the miner have been frequently stirred by the attitude assumed by different writers toward the unionized miner. The reading of the article, "Deal Squarely with the Railroads," *Coal Age*, Feb. 5, p. 274, leads me to make a similar appeal for the workers underground, and for that purpose I have chosen the same heading with the change of but a single word.

While some years have past since I could be classed, strictly speaking, as a miner, my whole anatomy is so impregnated with the mine atmosphere through continuous contact with my former associates, by reason of my calling, I naturally feel hurt when I hear the miners' union unjustly condemned.

There is little question in my mind that many other readers who, like myself, were formerly miners at the face, have the same feelings aroused in them by the agressive attitude of the press toward the union miner. Personally, I am at a loss to know why this attitude is so prevalent. Unless, like the old rhyme I read somewhere, a time ago, which runs:

"I do not love thee, Doctor Snell,
The reason why, I cannot tell,
But this I know and know full well
I do not love thee, Doctor Snell."

Certainly, I know that the miner is often radical, irrational in his demands and not infrequently tyrannical when the opportunity is presented. But, after all, is that not human nature and can we blame the miner for being human like ourselves? Many of us there are who have, during our lives, shown the same unreasonable vindictiveness, either as employer or employees.

Twenty years is not so long a period to look back upon and yet, in my experience as a miner during such time, it has been my lot to feel the severity, if not the

tyranny, of an employer when, with a few fellow workers, I dared to join a miners' organization in the valley, not 40 mi. from Pittsburgh. The purpose of the organization was to protect the interests of the men who toiled, for 10 and 12 hr. out of the 24, exposed to all the hazards and dangers of coal mining. The employer's attitude was: "The mines are mine; take what I give or leave; but you cannot organize." Will not the readers of *Coal Age* feel, with me, that such an attitude was unjustified and tyrannical?

Union Miner Becoming a Superintendent Realizes the Tyranny of Labor

Later, as manager of mines in an organized district a few miles outside of Pennsylvania, I have experienced the same *tyranny of labor*, until I almost prayed for the destruction of the very principle of unionism. But, after all, something tells me that, between these two extremes, there is or ought to be a happy medium where employer and employed can meet and confer on equal terms in respect to their common interests.

Viewed from a safe distance, the observer recognizes that organized labor always demands more than it really expects to get, just as organized capital contends for more than what is its just due. Notwithstanding all that has been said respecting the radical demands of the miner and the exorbitant wages he is paid, we who are closely associated with his work and know by experience the conditions under which it is performed, his hours of enforced idleness and the dangers to which he is exposed, know that he earns all that he receives.

Lack of Sympathy Among Workers in Different, Associated Industries

Unfortunately, there is a lack of sympathy, in this world, between workers and individuals of different classes. Too frequently, we refuse to look at the situation from any angle but our own, with the result that we do the other fellow an injustice. A few days ago, sitting behind two sheet-steel workers, in a trolley car, I overheard their remarks on the mining situation. The "roller" was speaking: "That's Bolshevism in this country, a demand for 60 per cent. increase and a 6-hr. day; and they tell me the miner makes from $10 to $12 a day. The Government ought to put guards at the mines and keep those fellows digging coal."

Then their conversation drifted to their own work. There had been trouble at the rolling mill, the previous night; a roll had broken and the men had to quit. Again the "roller" spoke: "A d—— bad shift; I figured my tonnage and found I made but $24.40, the whole d—— night." Yet, by this man's estimate, the miner he quoted as earning half that amount, in a longer shift in the mine, was a "Bolshevik," because he was demanding an increase in wages and shorter hours.

Knowing something of the work of the two men here mentioned, I can say that $24.40 is a very low figure for a shift of 8 hr. in the rolling mill. In my opinion, the man is no more entitled to that pay for a "d—— poor shift," by reason of his skill and intelligence, than any intelligent, practical miner employed in our mines today, who would consider the amount named was a d—— good night's wages, in return for his skill and experience in the mining of coal. It's a case of "Whose ox is being gored?" Let us hope and ask for a square deal for the coal miner in the near future.

Houston, Pa. SIM. C. REYNOLDS.

Markers on Mine Trips

Letter No. 6—Having always believed in the value of the practical discussion of mining problems and questions, it is with some degree of satisfaction that I cite the following incident to show the value of this department to the readers of *Coal Age:*

For some time back we had been unable to find a lamp that was at all satisfactory for use in the mine as a trip-marker, when our interest in this matter was suddenly aroused by the inquiry of J. J. S., *Coal Age*, Aug. 28, p. 397, giving a similar experience to our own. I was led to take part in the discussion that followed this inquiry, and my remarks in Letter No. 5, Oct. 23, p. 693, drew the attention of the Wolf Safety Lamp Co., with the result that we now have a satisfactory trip-marker. This lamp is a Wolf acetylene handlamp, No. 856, with a No. 860 reflector. It has now been in use as a trip-marker, in our mine, for over a month, and the results are entirely satisfactory.

One of the strong points of this lamp when used for that purpose is that it will hold a charge lasting the entire working day and, therefore, requires little or no attention from the triprider. The lamp gives a strong, bright light, which is thrown well in advance of the trip and makes the road plainly visible far enough for all practical purposes. The lamp is strongly constructed and simple in operation. My opinion is that, with a few minutes' time spent each day in cleaning the lamp, it should last a long time. Knowing a good thing when its use proves its merit, I am glad to pass it along for the benefit of others.

JEROME C. WHITE, Asst. Supt.
Portage, Pa. The Penker Coal Mining Co.

Supporting Mine Roof

Letter No. 2—Supporting the roof in a mine is a timely subject for discussion. The all-absorbing topic among mining men, today, is that of ridding the mine of the tremendous expense for timber. It cannot be denied that the available timber supply is growing less each day, while the demand for timber suitable for mining purposes is rapidly increasing, owing to the opening of new mines and the extensive development of old ones. It is not surprising that these conditions have increased the cost of mine timber and it is now high time to look for substitutes.

In considering this question, numerous methods and means suggest themselves as affording a practical solution from the standpoint of economy. While some of these will apply only locally, others will prove of general application in mining. Among the more helpful and promising of these suggestions may be mentioned the following: (a) Changing the method of attacking the coal, from advancing the excavation, to the retreating method of working. (b) Adopting the plan of driving narrower openings, as rooms or stalls, and leaving larger pillars between them. (c) Using fabricated steel in place of timber supports, wherever this is practicable from the standpoint of economy and safety. (d) Using concrete reinforced props instead of timber posts. (e) Building permanent masonry supports. (f) Planting timber to replace that cut each year.

Heretofore, the timber account in mining has not proved so large an item in the cost of operation. Today, however, the rising price of timber has made it

necessary to consider the problem of its conservation as being a question of the utmost importance. Notwithstanding the fact that much thought has been given this matter, the problem is still in its infancy in this country. Even the casual observer, noticing the extra care taken in the stacking of timber at the mines, the planning of mines with larger pillars and the introduction of the so-called "steel timbering," cannot fail to realize the growing importance of the timber question to the coal-mining industry.

Timber and Coal Saved in Retreating

In the winning of coal by the retreating system much of the expense of operation will be saved, on several accounts: 1. The entries and air-courses being driven in the solid coal, less timber will be required for the support of the roof. 2. The solid coal supports inclosing the entries insure less breakage of the posts and collars of timber sets and lessen the expense of their renewal. 3. Retreating methods of mining require less timber than advancing methods and a shorter period of service, which decreases the cost for renewals, and practically no timber is lost in the waste. 4. The extraction of the coal is more complete when retreating than when advancing, and there is less trouble caused by stumps left in the waste, which throws the weight over unto the pillars, crushing the coal and causing much loss. 5. The larger percentage of recovery, in the retreating system, is reflected in the reduced cost of production by that system.

The plan of driving narrower openings and leaving larger pillars between them saves timber on two accounts at least: 1. Less timber is required for the support of the roof in the rooms, which means less waste by decay and dry rot. 2 When drawing back the pillars, less timber per foot of coal face is needed, more timber is recoverable and there is less need for replacement of timber lost or broken.

On entries where heavy or strong timbering is needed, fabricated steel of suitable lengths, sizes and shapes are manufactured in large quantities for mine use. Much research work has been done, in recent years, by the engineers of the Carnegie Steel Co.; and experiments made, in the heart of the Pittsburgh coal fields, have proved the practicability of steel timbering.

This method of support has not come into general use, in the coal mines throughout the country, for several reasons: 1. The high first-cost of steel supports. 2. A plentiful timber supply available in certain localities. 3. More attention has been given, in steel timbering, to the question of *sets of timbers*, rather than to single props. Notwithstanding these drawbacks, it would seem that steel timbering will be, ultimately, indispensable to the mining of coal; and the manufacture of single units of suitable lengths, sizes and shapes may be expected to increase.

Reinforced Concrete Mine Timbers

The use of reinforced concrete in mine work has proved successful, both for permanent construction and for single units, as posts and bars. I recall that an excellent article on the use of concrete timbering appeared in *Coal Age*, Vol. 14, p. 362. The article was entitled "Reinforced Concrete Pit Props," and set forth the methods of testing used in the Manchester University, England, besides giving the comparative strength of timber and steel supports as used in English mines. The Manchester tests showed a large excess of strength in the reinforced concrete props, as compared with the strength of similar props of Welch larch timber.

The fire hazard is also a large factor in favor of concrete construction in mining. The strength and life of the concrete mixture is treated in an interesting article by H. W. Eldridge, which appeared in the Contractors' Atlas, New York, November, 1918. Speaking of concrete mixtures, the author writes:

> Concrete has always been thought of as a mixture of cement, sand and pebbles or crushed stone. It has been found, recently, that we have been disregarding one of the most important constituent materials in mixing concrete, namely, the water. It has been shown by laboratory experiments that a concrete mixture with 7.5 gal. of water (1 cu.ft.) to one sack of cement, after due allowances, gave a strength of 2,000 lb. per sq.in.; using 6 gal. of water, per sack of cement, 3,000 lb. per sq.in.; and using 5.6 gal. of water, per sack of cement, 3,300 lb. per sq.in.
>
> These results show that when a mixture of 1:2:3 is used, the water content should be from 5½ to 6 gal., per sack of cement. The data emphasize the fact that more care should be used in measuring the amount of water used.

Another excellent article entitled "Concrete in Coal Mine Service" appeared in *Coal Age*, Vol. 13, p. 916, and gives much interesting information on the use of concrete in mining.

Efforts in Conservation of Timber

Speaking of planting timber to replace that cut each year, I understand that this has been started, on a small scale, by some coal companies, but am unable to give the results of their efforts. In Pennsylvania, there are forest preserves in several places, some being located in Somerset County and others in Westmoreland County, almost at the door of the Pittsburgh district mines. I believe that these timber preserves will be available for mining use later. In this regard, the commissioner of forestry, at Harrisburg, Pa., will probably be able to state more definitely.

Before closing, I want to draw attention to two interesting articles that are to be found in *Coal Age*, Vol. 13, pp. 370 and 407. These articles relate to supporting roof in coal mines and contain a fund of information along this line. In the second article (p. 407), which is a continuation of the first, is treated the preservation of timber and a list of the different preservatives is there given. I would advise a careful perusal of these articles, as forming a basis for future thought and action.

R. Z. Virgin,
Assistant Professor of Coal Mining,
Carnegie Institute of Technology.
Pittsburgh, Pa.

Letter No. 3—Speaking of the growing scarcity of mine timber, I quite agree with the suggestion that the time is opportune for considering the best means to adopt for supporting the roof when the timber supply fails in the vicinity of the mines.

Realizing that we are approaching this condition in Pennsylvania, we have been trying steel timbering to a limited extent. In my opinion, the best material for this use is the I-beam or double channel, sometimes called the "H-bar." In some cases, we have used heavy rails that have been so worn as to be unfit for trackwork, and have found them of great advantage in securing the roof over roads and in air-courses.

For several years, I have adopted the method of using iron rails as roof supports on roadways. Where

the coal is hard, it has been my practice to make a needle hole, or hitch, in one rib near the roof; and then cut a slip-hitch in the opposite rib. Having cut the iron rail to the right length, one end is first inserted in the needle hole and the other then slipped into the hitch in the opposite rib. I frequently place a small block of wood in the back of the needle hole before inserting the rail, which gives the best satisfaction in the use of this type of timbering. In order to hold the bar in place, a hard oak wedge is driven behind it in the slip hitch.

When no longer needed, these rail bars are easily taken out and put aside for future use. Where the coal is of a friable nature, it is necessary to use a post on each side of the road to support the crossbar. When the bar is in position, suitable wedges are driven over the bar, or lagging is inserted to support the roof slate above it.

A form of telescope post made of sections of tubes that slip into each other has been used. Also, lengths of iron pipe are sometimes employed, by driving a wooden plug in the lower end and filling the pipe with sand, after which another wooden plug is driven in the other end of the pipe. These short wooden plugs are often gaged so as to give the desired length to the posts. Old broken posts come in handy for this purpose. Where the floor is soft, or where there is any possibility of the iron posts corroding, a heavy wood sill should be used on which to set the posts.

McKeesport, Pa. ANDREW O. BAIN.

Coal Mines in Scotland

Letter No. 3—Looking over a recent issue of *Coal Age*, Dec. 11, on page 899, I came across the excellent letter of Andrew O. Bain, discussing a previous article by an unknown writer, who may have been taking a holiday in Scotland, where he had obtained some curious ideas of the coal mines in that country.

Now, Scotland is famous for a celebrated brew known as "Scotch Whiskey," and it appears to me that our friend, while sojourning in that hospitable country, had partaken too freely of the beverage, which would account for his wrong conclusions in regard to the coal mining he attempted to describe.

Fearing that a wrong impression may be conveyed in respect to coal mining in Scotland, should the said article be taken seriously, I desire to add my little to the testimony of Mr. Bain and that of a previous writer, John A. Douglas, Oct. 2, p. 586, regarding the conditions existing in and around the coal mines of Scotland at the present time, as compared with conditions elsewhere.

The majority of coal seams mined in Scotland are thin, at times not exceeding 2 ft. in thickness. These lie at a considerable depth below the surface. The mining of the coal in the deep thin seams suggests innumerable difficulties that can only be met by mine managers (foremen) who are highly qualified for their position. So different are these conditions from those relating to coal mining in the United States and Canada, that it is impossible for any writer to give a true picture of Scotch coal mining, except he is able to view the subject through Scotch eyes.

Certainly the article of our friend is ridiculously amusing. His reference to securing a mine manager's certificate in that country is absurd, when it is known that the holder of such a certificate has obtained it through his own individual effort. The Scotch certificate cannot be obtained through family connection or political pull. Reflecting on the serious situation of coal mining in Scotland, where it is necessary to conserve every atom of coal, one will realize the impossibility of running a bluff and getting away with it, in an effort to secure a certificate. I regret that the same cannot be said of some other countries.

COMPLETE EXTRACTION OF COAL NEEDFUL

Regarding the extraction of coal in Scotch mines, it can be said that every possible ton of coal is taken out. The prevailing practice there is that the content of the coal area worked is carefully computed and all the coal must be paid for on the basis of that computation, whether it is mined or not. The result is that the complete extraction necessitated is a fair test of the mine manager's ability.

In sharp contrast with this condition is that prevailing here today. No one will deny that obstacles to the complete extraction of coal, in American mines, generally result in the abandonment of the territory; and thousands of tons of coal are thus lost beyond recovery, the chief object of the coal operator, in this country, being to show a good cost-sheet. It will be readily granted that such conditions afford no real test of the ability of the foreman in charge. I admit that the conditions in Scotch mines are not favorable to a low cost-sheet. Neither will the production, per capita, in that country, compare with the same in the mines of other countries where it is possible to introduce modern coal-cutting machines.

These conditiones, however, are no reflection on coal mining in Scotland. They even make it possible to ship soft coal across the Atlantic, in competition with the output of Scotch mines. Only recently it came to my notice that an American firm had secured a contract to deliver several thousand tons of soft coal, in Ireland, at a figure far below the cost of production in Britain, which is due solely to natural conditions.

SCOTCH *vs.* AMERICAN MINING

While it is not my meaning that the Scotch mine manager (foreman) is the last word in efficiency, I firmly believe that a just comparison of the results of the extraction of coal, in Scotch mines, with the same item in the mines of this country, would give a superior rating in favor of the former. The comparison would undoubtedly show that many of the certificates held by American mine foremen are relatively worthless.

Running a coal mine is no one-man's job. The successful mine foreman, in any country, must be a man with a true sense of proportion. His knowledge of coal mining, however good, will not offset the lack of skill in the handling of men. He must be an organizer, a student of human nature, a leader and not a driver, as the bully type of foreman is passing today. I am not a prophet or the son of a prophet; but it is far from a wild guess to say that the time is not long when it will be necessary to mine 2-ft. coal, in this country. It will then be possible to make a just comparison of the ability of foremen here with that of Scotch mine managers. However, our friend may not then be available that we may convince him of his errors of judgment.

J. H. MCMILLAN, Supt.,
Pocahontas, Alta., Canada. Peabody Coal Co.

EXAMINATION QUESTIONS

ANSWERED BY
JAMES T. BEARD

Indiana Mine Bosses' Examination, Indianapolis, Indiana

(*Selected Questions*)

Ques.—What are the causes of dust explosions in a mine, and what is the best known method to prevent them?

Ans.—Dust explosions result from the undue accumulation of fine coal and slack in the working places and on the roads and travelingways in a mine. The danger is much increased where the coal is blasted off the solid, or by the excessive use of powder, insufficient tamping or other causes that may produce a blownout or windy shot. The best method of preventing dust explosions from occurring in a mine is to remove all accumulations of fine dust regularly from the mine roads and working places. Where blasting is performed strict regulations should be enforced limiting the weight of charge and the number of holes fired at one time. The safest plan, in blasting, is to employ competent shotfirers to charge and fire all shots that in their judgment are safe. In a gassy mine where the coal is highly inflammable and forms much dust, no shots should be fired before the place is examined and found free from gas.

Ques.—What is the danger arising from working a mine adjoining an abandoned mine? What is the law regarding the method of approaching abandoned mines?

Ans.—The workings of the abandoned mine may be filled with explosive or poisonous gases that would enter the live workings when an opening is made. Or the abandoned mine may contain a dangerous accumulation of water that would burst the barrier pillar and flood the live workings.

Section 14 of the Mining Laws of Indiana requires that excavations "approaching abandoned workings which are supposed to contain dangerous accumulations of water or gases . . . . shall not exceed eight feet in width, and there shall be constantly kept, at a sufficient distance (not less than three yards in advance) one borehole near the center of the workings and sufficient flank boreholes on each side."

Ques.—What are the causes of mine fires? How would you proceed in case of a fire in a mine of which you had charge? Give full details.

Ans.—The causes of mine fires are numerous. Among the more common causes may be mentioned the following: The careless handling of open lights or use of matches in proximity to combustible materials, such as hay, powder, waste, canvas or board brattice, etc.; careless shooting in presence of gas; ignition of gas feeders; improper wiring and installation of electrical equipment; spontaneous combustion of fine coal and slack in the gob or abandoned workings, or from accumulations of oily waste in pumprooms and shanties; sparking of electric wires and brushes or blowing of fuses.

The manner of dealing with a mine fire must always be determined by the conditions regarding its location in respect to the air current and proximity to shafts or any combustible construction or material; and the headway gained by the fire when discovered; also, the means available for fighting the fire.

In any event, notify the men working in the mine, instructing them to withdraw at once and directing them by the shortest and safest route to escape to the surface. At the same time, summon help and lose no time in getting water to the fire. If the fire is on the intake and has gained some headway it may be possible to short-circuit the air so as to prevent the smoke and gases from being carried into the workings and suffocating the men before they have opportunity to escape.

Ques.—Give method of procedure in case an explosion occurred at a mine of which you had charge, by which the ventilating devices had been injured, and there were men to be rescued.

Ans.—The fact that the ventilating apparatus has been injured suggests the force of the explosion was considerable and makes it probable that much damage has resulted in the mine whereby the circulation will be cut off from reaching the workings, even when the apparatus is repaired and the air current restored. While immediate efforts must be made to effect temporary repairs to again put the ventilating machinery in commission, no time must be lost in organizing and equipping a rescue party for entering the mine and rendering any possible aid to the men in the mine.

Rescuers must be equipped with reliable breathing apparatus and approved safety lamps, without which no advance can be made ahead of the air entering the mine. The lack of available breathing apparatus will mean much delay in reaching the men, as the air current must then be established at the entrance of the mine, and the work of erecting brattices, building stoppings and repairing air bridges be started and carried forward as the rescuers advance.

No lights other than approved safety lamps can be used and the lamps must be closely watched to detect the presence of explosive gas. The rescuers must also carry with them one or more caged birds or mice as a means of detecting the presence of the deadly carbon monoxide, which is very liable to be present in dangerous quantity.

Ques.—How would you proceed to rescue a person caught by a fall of roof?

Ans.—Summon quickly what help is available nearby. Do not delay; but approach the place with caution, noting the condition of the roof above and around the fall and the position of the victim. Make no attempt to disturb the roof by setting timber, or removing loose pieces of slate that seem ready to fall. Instead, give immediate attention to releasing the man, by cautiously and expeditiously dragging him from beneath the debris if this can be done without further injury to the victim. Notify surface and foreman, and summon first-aiders.

INQUIRIES OF GENERAL INTEREST

ANSWERED BY JAMES T. BEARD

Save Fuel by Heating Feedwater

Kindly permit me to ask two questions, which are as follows: (a) What percentage of fuel will be saved by heating the feedwater to 150 deg. F., by means of the exhaust steam, before introducing it into the boiler, instead of feeding the water to the boiler at a temperperature of 50 deg. F., taking the total heat of vaporization or the heat above 32 deg. F., for a boiler pressure of 100 lb. per sq.in., at sea level, as 1185 B.t.u.? (b) Assuming this percentage of fuel is saved, at a mine using 1200 lb. of coal per hour, what weight of coal will be saved in a day of 8 hr.?

———, Pa. EXAMINER.

Using the exhaust steam and heating the feedwater from 50 deg. to 150 deg. utilizes 150 — 50 = 100 B.t.u. per lb. of steam generated in the boiler. This heat is abstracted from the exhaust steam and would be otherwise wasted. Since the total heat, per pound of steam generated, at 100 lb. per sq. in. boiler pressure, is 1185 B.t.u., the saving in heat units is (100 ÷ 1185) 100 = 8.4 per cent. This saving in heat units represents the percentage of fuel saved.

(b) The weight of coal burned in a day of 8 hr., in this case, is 8 × 1200 = 9600 lb. Under the assumed conditions, the weight of coal saved, per day, is therefore, 0.084 × 9600 = 806.4 lb.

Fan Installation

In my trouble I am coming to my old friend, *Coal Age*, which has benefited me many times during the three years since I first made its acquaintance. What is worrying me now is the fact that the ventilation in our mine is not up to standard. While it complies with the mining law, it is quite evident that before long the present fan will be unable to furnish the volume of air that will be required in the mine.

In view of this condition, we are considering the idea of setting up a second fan to assist the circulation and bring it up to the required standard. In turning over this proposition and casting about for material, I find that we have enough scrap lying about the place to build a 4-ft. fan. The plan is to set this fan in such a position that it will act in conjunction with the present fan to force the air through the mine. By a simple arrangement of trapdoors, the two fans will work, independently, on the same current.

The dimensions of the proposed fan are about as follows: Diameter, 4 ft.; width of blade, 2 ft. 6 in.; depth of blade 14 in. This will make the diameter of the central opening of the fan 4 × 12 — 2 × 14 = 20 in. It is the intention to run this fan at a speed of 250 r.p.m., that being the speed at which our motor will drive the fan without making any alterations.

The size of the mine airway is 5 x 10 ft., in section; and the length, including the return, 4,000 ft., which gives a total rubbing surface of 120,000 sq.ft. I want to ask if *Coal Age*, or any of its readers can tell me if the dimensions of this fan are such as will give satisfactory results. OSTEL BULLOCK, Supt.,

Hillside, Ky. Liberty Coal Mining Co.

The tip speed of a 4-ft. fan, operated at 250 r.p.m., is 250 (4 × 3.1416) = say, 3,140 ft. per min. The theoretical water gage corresponding to this tip speed can be calculated with close approximation by multiplying the diameter of the fan (ft.) by its speed (r.p.m.) and dividing that product by 900. The square of the quotient obtained will be the theoretical water gage in inches; thus,

$$w.g = \left(\frac{D\,n}{900}\right)^2 = \left(\frac{4 \times 250}{900}\right)^2 = 1.23\ in.$$

The corresponding unit pressure is 1.23 × 5.2 = 6.4 lb. per sq. ft. Then, for a rubbing surface of 120,000 sq.ft. and a sectional area of 50 sq.ft., this pressure will produce an estimated velocity of

$$v = \sqrt{\frac{p\ a}{k\ s}} = \sqrt{\frac{6.4 \times 50}{0.00000001 \times 120{,}000}} =$$

516+ *ft. per min.*

Therefore, estimating on, say a velocity of 500 ft. per min. in this airway, gives for the volume of air passing 500 × 50 = 25,000 cu. ft. per min.

Again, since the tip speed of the fan is 3,140 ft. per min., the area of opening at the center of the fan may be calculated for an intake velocity of, say 3,000 ft. per min. Thus, for a single-intake fan, the area of the center opening in this case is 25,000 ÷ 3,000 = 8⅓ sq.ft.; and its diameter is $d = \sqrt{8\frac{1}{3} \div 0.7854}$ = say 3¼ ft., or 39 in., which gives for the radial depth of the fan blades ½ (4 × 12 — 39) = 4½ *in.*

This is a high-speed, multiblade fan having a large single intake area. The blades of the fan must be firmly supported by two annular disks and set a distance apart somewhat less than the radial depth of the blades. The blades should be cupped, the concave side being in the direction of motion. The lip or inner edge of the blade should make an angle of 50 or 60 deg. with the tangent to the intake circle, while the blade tip is normal to the outer circle of the fanwheel.

The power required to drive this fan at a speed of 250 r.p.m., assuming an over-all efficiency of 80 per cent, can be estimated as about 6 hp., or, say, 4½ kw. This power would consume a current of 18 amp., under a pressure of 250 volt.

The successful working of two fans in parallel, however, will depend much on the proper balancing of the two ventilators, which is a matter that can only be regulated by an experienced operator on the ground.

Inside Information as to Development of Coal Transportation Problems

Hines' Authority, Lost by Return of Railroads, Restored (?) by President's Order—Tidewater Coal Exchange Orders Too General To Be Explicit—Commission on Car Service Will Not Order Immediate Homing of Railroad Cars—Dangers Seen in Yielding to "Assigned Car" Promises—Shipping Board No Longer Boosts Rates

JOHN CALLAHAN, the traffic manager of the National Coal Association, speaking of recent transportation development in Washington stated that during the past week much dispute has arisen in Washington, D. C., as to the order of the President of the United States dated Feb. 28. It re-establishes in Walker D. Hines the authority conferred on him by Dr. Garfield's order of Oct. 31, mention of which was made in the President's order reinstating Mr. Hines' power over the "delivery, use, consumption, distribution and apportionment of coal."

This order of Oct. 31 says that "I, (Dr. Garfield) designate the Director General of Railroads and his representatives to carry into effect the said order of Jan. 14, 1918 and to make such diversions of coal which the railroads under his direction may, as common carriers, have in their possession, etc., etc." It has been seriously questioned whether the Central Coal Committee members cannot be held under the law for any action they may have taken in connection with the further distribution of coal since it is clear that Mr. Hines has no "railroads under his jurisdiction." This subject was referred to the Attorney General and it is understood Mr. Palmer stated that Mr. Hines had the authority to divert coal under the order of Feb. 28. It is easily understood why Mr. Palmer should so interpret the order since he is said to have written it.

Wilson Restores Hines' Authority

Nevertheless further discussion of the matter resulted in the President issuing a new order, dated March 5, 1920. This order avoids all reference to any carriers under the control of Mr. Hines and places the necessity for such an order on the present emergency and the necessity existing that provision be made for the fuel requirements of the country. It empowers the former Director General of Railroads, his successor in office and his representatives, to distribute coal in the order of priority set forth in the preference list of the United States Fuel Administrator of May 25, 1918, also to establish rules for the regulation of this distribution; and further to regulate the method of production, shipment, distribution, apportionment or storage among dealers and consumers within the United States.

Thus in an effort to make this order of March 5 really binding and productive of the desired results, the former Director General is given the powers which section 25 of the Lever Act provided the President of the United States should accord whenever and wherever in his judgment it was necessary for the efficient prosecution of the war, namely the regulation of the method of "production, sale, shipment, distribution and apportionment or storage thereof among dealers and consumers."

The order of Feb. 28 gave the former Director General and his representatives authority only in connection with the "delivery, use, consumption, distribution and apportionment of coal." There is, of course, question as to whether or not the President's order of March 5, quoting the order of Aug. 10, can give Mr. Hines powers in connection with the production of coal, for example, which were only given by the law in order to insure the efficient prosecution of the war.

No Outcome Yet of President's Order

Owing to the uncertainty there was little, if any, diversion of coal during the week ended March 6, although there were thousands of cars of coal held up simply because the carriers could not move them to their billed destinations. These because of lack of authority and organization machinery, have been allowed to stand unmoved during the past week. Mr. Hines has now re-established the Central Coal Committee although there is a question as to just how effectively it can act since it is understood that several members of the original committee will be actively engaged in other duties.

Special attention is directed to the fact that by the instructions of the former Director General: "Producers and shippers of bituminous coal under contract to furnish fuel to consumers and dealers within the United States, shall give preference in the shipment of such coal to such consumers and dealers to the extent necessary to supply their actual current needs and in the order of precedence established by the U. S. Fuel Administrator under date of May 25, 1918." Since the railroads head this list, it is not at all difficult to sense the real occasion for the order and it is indeed unfortunate that the failure of the Purchasing Section of the Railroad Administration to provide, during the contract period in 1919 for the proper supply of coal, should result in the necessity for such arbitrary action on the part of Mr. Hines.

Distribution by Regional Committees

The regional Coal Committees that have been established, pursuant to the President's order, will only have authority to distribute in emergency to the first five classes of the priority list, namely railroads, army and navy, state and county institutions, public utilities and retail dealers. The new order, however, distinctly separates the powers of distribution of coal generally from the powers conferred upon the Tidewater Coal Exchange officials under the order dated Feb. 25.

The officials of the Tidewater Coal Exchange did not adequately supplement the order of Feb. 28, in relation to the Tidewater Coal Exchange, for the order under date of March 1 provides only that the exportation

of coal will be permitted when, and to the extent that, the requirements of consumers within the United States will allow. Also that all permits to export must be secured from J. W. Howe, Singer Bldg., 149 Broadway, New York, applications for permit to export to include the name of the applicant, his address, the class of coal and purpose for which it is to be used, the amount of such coal, the name of the shipper, the district from which the coal will be shipped, the port of exportation, the terminal railroad, the date of the contract, the consignee, the foreign destination, the name, deadweight tonnage and flag of the carrying vessel, the condition and position of this vessel at the time of application and the name of the pool at which the coal is available at Tidewater.

Shippers Question Status of Ports

It is also provided that permits will only be issued when the vessel is in the harbor and the applicant has sufficient credit in the pool named to cover the request for privilege to export. Furthermore, these permits will expire by limitation on midnight of the seventh calendar day after issuance. The Tidewater Coal Exchange rules and regulations in effect Feb. 25, 1920, are to be continued operative.

Shippers at some ports much question what is the status of the tidewater pools, particularly in view of the action that has been necessary in the recent past in the way of diversion of coal. This uncertainty has made some coal shippers hesitate to ship to the pools until they have some assurance that they will be able to obtain the coal for which they establish credit in the exchange. Little difficulty is anticipated in this connection at Norfolk and less difficulty is looked for at Baltimore than at the two northern ports over which the Tidewater Coal Exchange has control, viz., New York and Philadelphia. This is because exportation from Philadelphia and New York was practically reduced to a minimum some 6 or 7 weeks ago, whereas there has been a continued movement of a considerable volume of coal through Hampton Roads. It is not necessary to add that the exportation of coal through New York has never been large.

Cars to Return to Owner's Rails

On Wednesday, March 3, the Railroad Relations Committee of the National Coal Association conferred with President Aishton of the American Railroad Association and that association's Commission on Car Service. As a result of this conference it is understood that there is no present intention on the part of the Commission on Car Service to call on the railroads in an arbitrary manner for the return of open-top cars to home rails. On the contrary, it is the expectation of the Commission on Car Service to accomplish the return of cars to their owners' rails by a gradual transition process.

Efforts are being, and will continue to be, made to confine cars to home-line rails, and at the same time to require foreign lines to return to home lines all the cars that can be so handled, but at no time must this be done if the coal industry shall thereby be interfered with and coal loading reduced. Such liberality in the interpretation of the rules as is necessary to carry out this plan will be authorized and a maximum amount of elasticity will be provided in the new Car Service Rules.

Transportation officers of some 25 Eastern coal-loading roads will be in Washington shortly in conference with the Commission on Car Service and will discuss just what procedure is necessary to insure that this course is followed, and it is expected that as a result of this conference an understanding will be reached which will make possible a practically universal application of the rules, thus insuring the maximum loading of coal during the troublesome transition period through which we are now passing.

If Cars Are Mishandled Output Will Fall

It was clearly understood by all interested persons at the conference that while coal operators will be requested to co-operate in every way to insure that cars will be used with maximum efficiency, they will not, because of the rules, be subjected to undue or unnecessary difficulties in the transaction of their business, and that when they wish to ship cars placed under their tipples to any destination for which they have orders, their wishes are to be respected. Coal producers should, however, endeavor to load cars so that they will move in the direction of, and therefore reach, the home line with a minimum amount of delay.

It is quite probable that further instructions will be issued by the Commission on Car Service in the near future making detailed arrangements to insure the return of certain cars to their home rails where this can be done without interfering with the transportation of coal and other commodities which are to be loaded in open-top cars. Cases involving roads, the coal production of which is to a large extent delivered to destinations off the originating line, will receive special treatment.

In the event that such action is necessary, cars will be arbitrarily moved to these roads to insure a coal production comparable with that allowed generally in the district in which such railroads operate. Coal operators should keep in close touch with their railroad officials on these matters and ascertain just how they should route cars so as to insure that the best possible use may be made of them.

There was some discussion within the commission as to the status of "assigned" cars. The Commission on Car Service has addressed all the railroads suggesting that it will be desirable to continue in effect circular CS-31 of the Car Service Section of the U. S. Railroad Administration and this should be of great assistance in continuing the assigned-car matter in its present status, and it is hoped that the railroads will not at this time arbitrarily return to the use of assigned cars.

Sign Railroad Fuel Contracts With Caution

Coal operators who are approached by railroad officials in regard to signing up contracts for railroad-fuel which include provisions for the use of assigned cars should carefully consider the provisions of the new law as passed in the railroad bill, which specifically requires that carriers must maintain and apply just and reasonable ratings of coal mines and count each and every car furnished to or used by any such mine for the transportation of coal against that mine and that it is not impossible that where any concessions are made in return for the assigned cars that the carriers making such offer may find themselves unable to carry out their portion of the bargain insofar as a supply of cars to such a mine, in excess of that which other mines on the same division receive, is concerned.

The Interstate Commerce Commission has also taken action in this connection through the medium of a letter

signed by G. B. McGinty, and dated March 2, 1920. This is addressed to all carriers and shippers, and reads as follows:

The supply of cars available for the transportation of coal is insufficient to meet the demand. Unusual movements incident upon the strike of coal miners has brought about an abnormal location of cars. It is desirable that cars be properly relocated as rapidly and with as little confusion as is possible. Critical situations will still exist in which fuel for essential industries and purposes must be provided. The railroads and the coal operators have all been working under the uniform mine-rating and car distribution rules established by the Railroad Administration and these rules seem to be generally satisfactory and to meet with general approval.

To the end that conflicting and contradictory rules on different roads and in different fields may be avoided in the unusual conditions which now exist in the industries and on the roads, the commission recommends that until experience and careful study demonstrate that other rules will be more effective and beneficial and especially during the remainder of the early spring the uniform rules as contained in the Railroad Administration's Car Service Section Circular CS-31 (Revised) be continued in effect.

From this it will be seen that it is the desire of the Interstate Commerce Commission that the provisions of the mine-rating and car-distribution rules shall be continued until all the matters involved in them can be investigated.

Of interest to exporters of coal is an announcement by the Shipping Board that all its tariffs on freight rates have been cancelled. The shipping rates on ocean coal will be fixed hereafter and announced by private shipping companies managing and operating the government merchant ships. The Shipping Board has put in force an agreement reached with private shipping companies, by which these firms will determine rates to be charged for the transportation of coal by the vessels of the Shipping Board.

The private companies operating the Shipping Board vessels will receive a fixed rate of compensation from the Shipping Board for the service of managing and operating the ships, and will also share in the profits realized above the actual cost of operation. The Shipping Board will supervise rates on coal and other commodities to prevent them from ascending above a reasonable level. In other words, the action of the Shipping Board in this instance practically amounts to the ultimate withdrawal of the government from its continued regulation of the shipping business in such a manner that open-market competition could not be met.

Shipping-Board officials are of the opinion that the removal of the government embargo on coal export, when it comes, will cause a resumption of the flow of coal from this country to foreign markets which this time will be in larger measure than before. This will probably increase the demand for ships to the extent that practically the same rates as those now in effect will obtain.

Will the Anthracite Miner Receive an Increase?

Operators and Miners Meet at New York City on March 9—Demands Referred to a Sub-Committee—60 Per Cent Increase and 5 Day Week Urged

CONSIDERATION of a new wage agreement to become effective on April 1 between the anthracite operators and their employees began at the Hotel Pennsylvania, New York City, on March 9 and it is expected will continue, with the possible exception of week-ends, until negotiations are concluded. The demands were referred to a sub-committee of operators which consists of the following:

Operators—S. D. Warriner, Philadelphia, president of the Lehigh Coal & Navigation Co.; W. J. Richards, Pottsville, president of the Philadelphia & Reading Coal & Iron Co.; W. L. Connell, Scranton, president of the Enterprise Coal Co., and C. F. Huber, Wilkes-Barre, president of the Lehigh & Wilkes-Barre Coal Co.

Miners—John T. Lewis, international president of the United Mine Workers; John T. Dempsey, Scranton, president of District 1; Thomas Kennedy, Hazleton, president of District 7, and Christ J. Golden, of Shamokin, president of District 9.

Alvan A. Markle, of G. B. Markle & Co., Hazleton, Pa., independent operators, is the chairman of the sub-committee, having no vote, and James A. Gorman, also of Hazleton, is the secretary. Mr. Gorman is the secretary of the Anthracite Conciliation Board and Mr. Markle was the chairman of the sub-committee that negotiated the last working agreement between the miners and operators.

The demands presented to the operators were adopted at the Wilkes-Barre convention last August and later ratified at the National Convention held in Cleveland a month later. They consist in part, as follows:

(1) "The contract wage scales be increased 60 per cent, and that the increases secured in the supplemental agreements of 1917 and 1918 shall be included in the wage scale as the basis upon which the 60 per cent shall be added, and that all day men be granted an increase of $2 per day.

(2) "A uniform wage scale be established so that the various occupations of like character at several collieries shall command the same wage and that shovel crews operating for coal companies shall be paid not less than the rates paid by the contractors to shovel men.

(3) "A work day of not more than six hours from bank to bank be established for all classes of inside or outside day labor, five days per week, the uniform sales to be the basis upon which the advance above demanded shall apply with double time for Sundays and holidays.

(4) "A closed-shop contract, which means full recognition of the United Mine Workers of America as a party to the agreement."

W. L. Connell, of Scranton, presided at the general meeting at the Hotel Pennsylvania on the afternoon of March 9, when the demands were formally presented. Forty-nine operators and 37 representatives of the miners were present. President Lewis and Vice-President Murray represented the international organization of the Miners' Union.

Although the meeting was executive, it was stated that Mr. Lewis and Mr. Warriner made short addresses, the former telling the operators that the miners were approaching the negotiations in the spirit of utmost fairness and sincerity. Mr. Warriner stated that the demands would be given proper and fair consideration. These demands were explained in detail by Mr. Kennedy and by Mr. Golden. It was then decided to refer the demands to a sub-committee of operators and miners.

No session was held on the following day (Wednesday) but on Thursday the conferees met at the Union League

Club, Fifth Ave. and 39th St. Mr. Lewis was absent, it being announced that he had gone to Washington to confer with John P. White, a member of the Bituminous Wage Commission, a former president of the International organization of the Miners' Union.

At the conclusion of the first session of the conference on March 9 the representatives of the mine workers gave out the following statement containing the reasons for the demands:

"The mine workers insisted that the human element should be considered as well as the financial element in reaching a decision on the question of a new contract.

"Their demand for a 60 per cent increase in wages was based largely on the tremendous increase in the cost of living. The standard of living had advanced in the last few years to such an extent that the wages which would have been sufficient for the standard of living of a few years ago were not sufficient to provide for the standard of living in 1920. This they said was the natural result of changed and changing conditions throughout the world.

"The demand for the six-hour day was more misunderstood than any other demand that had ever been made before by the coal miners of this country. The establishment of a shorter work day would not result in a curtailment of production of coal but the miners insisted that the production would be as great in a six-hour day as it has been heretofore under the longer work day. Men retain their efficiency as workmen under the shorter work-day system better than in the longer work day and are more capable of doing effective work.

"On the subject of the closed shop, the miners said that the United Mine Workers of America has served its apprenticeship in the anthracite region, and that it is no longer merely a labor organization, but that it has become in the anthracite region a real institution which has done more to stabilize the mining industry and to bring and maintain peace, tranquillity and harmony in the industry than any other single institution, therefore they said it was entitled to full and complete recognition by the operators and the public.

"Since all of the miners in the anthracite region share in the benefits which the organization has obtained they should all become members of the union and share in its burdens and responsibilities. They held that the operators ought to aid in bringing about a 100 per cent organization because of the fact that the union has done so much and is capable of doing so much more toward the stabilization of the industry.

"John L. Lewis, international president of the United Mine Workers, told the operators in the conference that the miners were ready to approach the negotiation of a new contract in the spirit of utmost fairness and sincerity, realizing that the miners, the operators and the general public are the parties in interest in the entire matter. He said that the making of a new contract should be approached in the light of present existing circumstances and conditions with the purpose on both sides to reach an agreement that would do full justice to all parties."

Following the session on March 11 it was announced that it had been decided to eliminate the demand of the miners for an agreement to supplement that of Nov. 15, 1918, under which the contract miners received a wage increase of 40c. a day while the day laborers got an increase of $1.

The second session of the sub-committee was held at the Union League Club on Friday, March 12, at the end of which the following statement was issued explaining the day's work: "The request of the mine workers for payment for all dead work on the consideration basis and the demand for the abolition of the dockage system was before the committee. The operators' representatives sought from the miners the interpretation the miners place upon these two demands. A general discussion of these two questions followed."

Railroad Confiscations Declared to be Illegal

Ex-President Taft Sees No Reason for Government Price Control

CONFISCATION of coal by the Railroad Administration and the fixing of prices at which coal may be sold by the Government was recently held to be illegal in an opinion rendered to the Smokeless Coal Operators' Association by former-president William Howard Taft.

As to the question of government-fixed prices, Mr. Taft says: "In the absence of any finding of the President that these orders restoring old orders are necessary for the efficient prosecution of the war, I cannot see how authority to fix prices can continue so as to prevent coal operators from making contracts after April 1, in accordance with their usual custom, at prices mutually satisfactory to the parties and without regard to the prices fixed in the order of Oct. 30, 1919."

In regard to the right of the Railroad Administration to divert coal or issue orders or regulations for such diversion, Mr. Taft declares that the first answer holds. Further, he states that even the first order restoring the Government price on coal had no relation to the prosecution of the war.

Repeal of Excess Profit Tax Forecast

Senator Watson Says Relief from High Cost of Living Will Be Impossible Until These Taxes Are Removed

REPEAL of the present system of excess profits taxes and the substitution in their stead of direct sales taxes has been virtually decided upon by Republican leaders in Congress, according to an announcement last week by Senator Watson, Republican, of Indiana, a leading member of the Senate Finance Committee.

"The excess profits taxes are a direct burden on the people of the country and relief from the present high cost of living will be impossible until these taxes are removed," Senator Watson declared. It is explained by those who wish the excess profits taxes removed that manufacturing concerns are unable to gage their possible profits under such taxes until the end of the year. To cover up any possible loss under regular earnings additional charges are placed on commodities, they believe.

If the system of taxation is changed to a system of sales taxes the producer can charge the flat tax as part of production or expense and gage his profits accordingly. A conference will be held this month at which leaders of the Senate Finance Committee and the majority members of the House Ways and Means Committee will participate, Senator Watson announced.

Committee of Three Disagree Over Bituminous-Wage Problems

Bituminous Committee Dissolved Without a Unanimous Decision, Thus Ignoring President's Instructions—Two of Three Advocate a 25 Per Cent Increase, but White Refuses to Agree

IGNORING President Wilson's request to arrive at a unanimous decision, the coal commission after an investigation which lasted for more than two months disagreed and two of its members made a report, the commission discharging itself from its duties on March 10.

Chairman Robinson and Rembrandt Peale sent the majority report to the President, while John P. White, the former president of the United Mine Workers of America and mine workers' representative on the commission, is still working on his minority report.

Although the contents of the report are not officially known, a rumor, which has received confirmation, is to the effect that an increase of about 25 per cent was awarded to the miners in the majority report. No increase in the price of coal is recommended, but such an advance is suggested, the matter of making provision for it being left in the hands of the Fuel Administration. One hundred million dollars a year, it is estimated, is the increased figure that the public will have to pay the mine workers if the advance is granted. It is probable that this wage increase will not be retroactive and will presumably become effective after April 1. Some of the other points settled are as follows:

1. The check-off system is to be continued. 2. The question of differentials is to be left to a special commission to be appointed by the miners and operators. The report of this commission will be incorporated in the next wage agreement. Two years is given as the maximum time in which to complete this report. 3. A six-hour working day and a five-day week have been denied.

It is believed that White did not dare to conform with the majority report so long as the anthracite agreement is being investigated in New York City. Had not the anthracite negotiations been under way, White might have been willing to sign the document.

The President has requested that the commission reconsider the matter. Even if it is made unanimous the mine workers may reject the report, for they had large anticipations. White insists that the 31.6 per cent increase offered by Secretary of Labor Wilson is fair and should be granted to the miners, and he adds that the operators should be permitted to advance the price of coal in accordance therewith.

The anthracite mine workers are, of course, much interested in the decision relative to bituminous mine labor and should the bituminous men reject the decision, there is a possibility that a combined strike involving both anthracite and bituminous-coal miners will take place. This would affect about 550,000 men, 400,000 being the number of bituminous miners in union districts.

Premature publication of the salient points of the majority report caused much perturbation in Washington, as it had been intended to release both majority and minority reports simultaneously.

The commission summoned by President Wilson to investigate conditions in the bituminous-coal industry and recommend measures for the coming wage agreement in the Central Competitive district last week agreed to disagree and filed majority and minority reports with the chief executive. Neither of these reports has been made public, but it is understood that the representatives of the public and coal operators were agreed that a wage advance aggregating slightly in excess of 25 per cent with no changes in hour of labor might be granted. The miners' representative, on the other hand, was firm in his advocacy of increases stated variously as amounting to 30 to 35 per cent and the adoption of a 7-hour day.

Thus deadlocked, the commission dissolved, rendering its separate findings as noted above. The President, however, is not satisfied with this result and has "deemed it advisable" to again summon the members into session with instructions to reach a unanimous decision if possible. While he is free to accept either of the reports already rendered he much prefers unanimity.

It should be recalled that the miners struck last fall demanding a 60 per cent increase in wages, a 6-hr. day and a 5-day week. The anthracite miners reiterate these demands in their present negotiations with the operators.

Peale and Robinson Show No Bitter Feeling Against White

It is denied that there was, as reported from a few sources, a bitter altercation between Robinson and Peale on the one hand and White on the other, over the report of the Bituminous Coal Commission. It is understood that neither Peale nor Robinson is greatly exercised over White's dissent from their wage ruling.

French Miners in Sympathy Strike

It was estimated by officials of the French Federation of Labor on March 13 that nearly 400,000 persons in all were on strike in France at that time. In the Department du Nord some 20,000 coal miners have struck in sympathy with the strike of an equal number in Pas-de-Calais, and this development has strengthened the hope of the radicals among the labor leaders that a general coal strike may be brought about.

More Trouble for the President

There was much talk in Washington on March 12 about the President ironing out the differences between the two reports made by members of the Coal Commission. Interest is revealed in the still unpublished findings of the commission and much speculation was made as to whether President Wilson would accept or reject the majority report.

It is an open question whether Chairman Robinson, who represented the public interest, would consent to return to Washington to reconsider a decision that he believes to be in the public interest.

With the exception of the pay increase and the fixing of the working day at eight hours from bank to

bank, the miners are willing to accept the majority report. They are more insistent on a shorter working day than they are on higher pay.

Indictments Brought Against 125 Bituminous Miners and Operators

Conspiracy to Limit Coal Production Is Charged —Identity of Indicted Men Not Revealed —Only Bituminous Operators Involved

AT INDIANAPOLIS on March 11 indictments charging 125 operators and miners with conspiracy under the Lever act to limit the production of coal, were returned by a special grand jury which has been investigating the coal industry for the past three months.

Judge Anderson of the Federal court fixed the bail at $5,000 and $10,000 on the men. Their names will not be disclosed until after their arrest. Punishment, if convicted, would entail a fine as high as $10,000 and imprisonment up to two years, or both. May 4 is the day set for the arraignment of the men now under the indictment.

Nearly all the indicted are operators in the Central Competitive field, and only a small number of mine workers' officials are named.

After perhaps the longest session in the history of the Federal court in the State of Indiana, which lasted 49 days, the special grand jury in charge of U. S. District Attorney Dan W. Simms, brought charges against the largest operators in Illinois, Indiana, Ohio and Western Pennsylvania. It has been stated that several leaders of the United Mine Workers of America will be forced to stand trial. No arrests are expected for several days. Much time must be allowed to give the Government officials time to prepare 125 capiases which are to be served upon the indicted men.

"No Large Increase—No Coal"— Say Bituminous Miners

Strike Is Eminent Unless Substantial Raise In Pay is Awarded

ON March 9 before the award of a 25 per cent increase was granted a statement was made by the United Mine Workers of America, whose headquarters are at Indianapolis. The statement as given to the press reads as follows:

"Nothing short of a substantial increase in wages and improved working conditions will be acceptable to the United Mine Workers of America. The miners are awaiting the decision with much anxiety. We believe the public will understand our position.

"Unless a settlement of the controversy is made on such a basis the miners will not feel that full justice has been done them. There has been a steady increase in the cost of living since the first of this year, in spite of the fact that the government represented to labor last summer that living costs would be reduced and that the government would see to it that this was done.

"Furthermore, promises of reductions in the cost of living would fall on deaf ears, as far as the coal miners are concerned, because they have had their experience with such promises in the past, all of which have gone unfulfilled."

What "They Say" About the Coal Commission's Award

Operators Unable to Formulate Opinions—25 Per Cent Increase Too Much For Mine Operators to Assume

OPERATORS and their representatives in Washington, at this writing, are unable to formulate opinions or plans based on the Coal Commission's award, because of the uncertainty as to just what the award covers. They are positive, however, that there must be an increase in the Government price or the withdrawal of control altogether, in the matter of price, if the nation's fuel requirements are to be met.

It is stated positively that an award providing an increase of 25 per cent in the wage scale cannot be absorbed by enough mines to produce the country's coal, while if a compromise should be reached on a still higher percentage of increase the situation would be worse. It is declared that even if price control is removed, it will be a serious matter for some districts, and that under such an award no commercial mines in the State of Washington could continue in operation.

In addition there are other fields where the matter of competition with other fuels is serious.

A wage increase of 25 per cent would add from 50 to 60c. a ton to the cost of producing coal. If these estimates are accurate it will mean a minimum increase in the cost of producing the country's coal, of $250,000,000. With such a victory to its credit, many are of the opinion that there will be a higher degree of inefficiency on the part of labor, thereby adding materially to the figure just mentioned.

A large number of operators were in Washington at the time the award went to the White House. Many of them were outspoken in denouncing it as an unwarranted burden to place on the shoulders of the coal industry and of the public in general. It is practically the unanimous opinion of those operators who followed the hearings before the President's Coal Commission that the war-time wages, calculated to bring out maximum production, afforded ample compensation to industrious miners.

The award, it was claimed by some, shows how fundamentally wrong it is to place in the hands of an informally chosen Governmental body, with no machinery for appeal, a hard and fast adjustment of personal relationships. It is an attempt, some say, to give the men who work the least time a comfortable living wage, and allow those who really are industrious a wage out of proportion to the earning power of this class of labor in other industries.

Such an increase in salary, as is carried in the award, it was declared, strikes a most effective blow at our chief asset in the matter of foreign trade. Our ability to compete has been due largely to our cheap power. On the whole the award is regarded as a new and most important factor in increasing still further the cost of living.

An immediate effect of the award, it was pointed out, will be to necessitate increased freights whereby the railroads may meet the higher cost of their fuel. Much objection was voiced because the award has been made on a percentage basis. A percentage basis affects each district differently and will make for great difficulties in apportioning the increases.

It is believed that no consideration was taken by the Commission of the fact that many miners have an income from work done during the hours that they do not engage in mining. Such limited facts as are available regarding the awards, lead to the very geenral conclusion that it is a victory for mine workers and represents a long step toward the nationalization of coal mines, which is the objective toward which the mine workers are really working, some think.

Peale and Robinson Comment On Recent Decisions

Shortly after a decision of the Bituminous Coal Commission had been filed with the President, both Mr. Robinson and Mr. Peale, it was learned, were approached by correspondents from newspapers from all over the country, in an endeavor to hear what each had to say with reference to the outcome of the investigating committee.

Chairman Robinson, it is understood, is adamantine on the conclusion that with the world in its present condition of deficient production this is no time to talk of six and seven-hour working days. The increase favored by the majority will cost the country $100,000,000 a year, and a reduction of the working time would result, in either a shortage of coal or still higher costs to the public.

Mr. Robinson is represented as being impressed with the prospect that with a regularizing of coal production, which he considers entirely feasible, through storage by large consumers and other means, the miners can be kept steadily at work throughout the year and can easily produce enough coal for an export trade of 100,000,000 tons a year, provided they will accept an eight-hour day. With a slump in agricultural and manufactured exports as is very generally forecast, a large volume of coal exports may soon be expected.

It was authoritatively learned that Rembrandt Peale, representing the operators on the commission, was as much displeased with the majority report, which was dictated by Robinson, as White was, but as the only way of avoiding three separate reports finally acceded to Robinson's position, though he had to swallow such a bitter dose for the operators as the retention of the check-off system, which practically means that the opertors must continue to be the financial medium for keeping the union mine workers of America numerically strong and plethoretically financed.

National Coal Association Shows That Miners Make Good Wages

The accompanying tables are from the exhibit prepared by the National Coal Association for the Bituminous Coal Commission. While by no means all of the coal districts of the country are here represented, enough daily and monthly earnings are set forth to show the general trend of conditions. If these tables show anything clearly, it is that the men who work steadily earn more per day than those who work with great irregularity.

Take, as an example, the pick miners of the Pittsburgh Thin Vein Field. Table II shows that those of these men who worked less than 25 per cent of the time earned $5.50 per day, while those who worked from 75 to 100 per cent of full time earned $6.62 per day.

Comparing the figures throughout the entire table, it will be seen that the men who work reliably receive on the average not only greater compensation per month but also greater wages per day.

Table I. Deductions for Smithing and Explosives Compared with Gross Earnings of Pick Miners and Loaders for 10 Months, January to October, 1919

District	Pick Miners and Loaders: Average No. Men Working per Mo.	Average Daily Earnings per Man	Average Total Earnings per Mo.	Average Deductions per Month: Smithing Amt.	Smithing Per cent of Earnings	Explosives Amt.	Explosives Per cent of Earnings
Pittsburgh Thick Vein	1,405	$5.91	$138,974	$1,667	1.20	$1,641	1.18
Pittsburgh Thin Vein	2,516	5.79	225,806	1,983	0.88	1,968	0.87
Ohio No. 8	2,216	5.83	195,559	13	0.01	2,799	1.43
Southern Ohio	2,462	5.97	165,295			2,755	1.67
Indiana	3,468	6.83	277,069	3,786	1.36	19,383	7.00
Illinois Nos. 5 and 9	2,604	7.20	232,805	269	0.12	9,127	3.91
Freeport	508	6.91	63,231	215	0.34	3,698	5.85
Central Pennsylvania	3,897	6.02	352,828	2,719	0.77	5,344	1.51
Fairmont	2,384	6.03	198,513	931	0.46	5,782	2.91
Kanawha	570	5.82	46,251	103	0.22	517	1.12
Western Kentucky	942	5.20	52,762	372	0.71	2,924	5.54
Michigan	540	6.97	58,104	75	0.13	1,807	3.11
Iowa	790	7.43	73,001	823	1.13	5,251	7.20
Missouri	550	5.80	45,168	169	0.37	2,966	6.57
Arkansas	407	8.00	37,544	277	0.74	2,987	7.96
Kansas	1,188	6.26	122,302	1,172	0.96	15,212	12.44
Oklahoma	304	6.66	24,330	123	0.51	1,200	4.93
Colorado	1,420	6.68	144,382	693	0.48	5,632	3.90
Montana	59	7.75	6,030	61	1.01	414	6.87
Wyoming	572	7.64	68,888	51	0.07	1,867	2.71
Washington	458	7.80	58,302	158	0.27	3,848	6.60

Table II. Earnings of Mine Labor, by Occupations, as Reported by Operators of Bituminous Coal Mines in Various Fields During the 10 Months, January to October, 1919

The number of calendar days each mine loaded coal is taken as 100 per cent opportunity for labor to work. Table shows average earnings of men in various fields per day and per month working specified percentage of full opportunity.

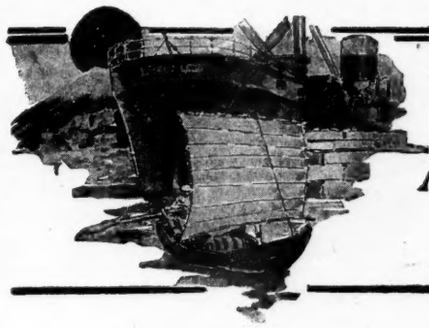
Occupations	Less than 25 Per Cent	25 to 49 Per Cent	50 to 74 Per Cent	75 to 100 Per Cent	Worked more days than mine
Average Daily Earnings					
Pittsburgh Thick Vein Field					
Pick Miners	5.88	6.33	7.01	7.26	7.15
Loaders	4.22	4.97	5.36	5.74	5.77
Machine Men	5.53	6.17	7.34	8.07	8.04
Inside Day Men	4.81	4.93	5.10	5.18	5.21
Outside Day Men	4.25	4.50	4.68	4.80	4.94
Monthly Men	2.80	3.93	4.03	4.51	4.45
Average Monthly Earnings					
Pick Miners	15.74	49.09	96.26	146.13	155.49
Loaders	12.95	37.53	77.62	118.67	113.63
Machine Men	12.57	35.35	105.61	165.59	165.14
Inside Day Men	14.48	44.51	74.07	109.05	131.29
Outside Day Men	13.52	38.56	65.52	99.83	127.50
Monthly Men	14.00	29.50	62.10	90.63	135.92
Average Daily Earnings					
Pittsburgh Thin Vein Field					
Pick Miners	5.50	6.21	6.28	6.62	6.02
Loaders	4.50	4.90	5.25	5.76	5.90
Machine Men	5.03	5.24	6.51	7.27	6.80
Inside Day Labor	5.06	5.10	5.07	5.16	5.23
Outsie Day Labor	4.32	4.36	4.33	4.43	4.83
Monthly Men	8.91	4.60	5.25	7.40	4.18
Machine Men and Loaders	5.38	7.44	7.09	7.88	7.08
Average Monthly Earnings					
Pick Miners	16.07	50.80	87.08	129.41	121.00
Loaders	13.26	39.58	74.97	111.67	120.13

	Worked				
	Under 25 Per Cent	25 to 49 Per Cent	50 to 74 Per Cent	75 to 100 Per Cent	More than mine
Machine Men	12.67	43.94	84.66	149.63	128.73
Inside Day Labor	13.98	41.33	71.27	108.71	124.65
Outside Day Labor	12.24	33.92	62.71	95.67	118.97
Monthly Men	39.00	21.36	84.06	88.78	126.16
Machine Men and Loaders	23.33	85.42	112.92	171.33	157.50
Average Daily Earnings					
Eastern Ohio Field					
Pick Miners	5.83	6.12	6.45	6.31	6.06
Loaders	4.62	5.30	5.51	5.97	5.55
Machine Men	6.12	6.41	5.85	6.83	6.15
Inside Day Labor	4.62	4.76	4.96	4.71	5.22
Outside Day Labor	4.76	4.76	4.72	4.50	4.78
Monthly Men	8.52	7.46	5.52	5.73	4.84
Average Monthly Earnings					
Pick Miners	16.69	52.72	92.74	124.22	140.36
Loaders	12.92	38.16	72.80	109.02	118.38
Machine Men	15.94	46.67	72.61	126.81	140.36
Inside Day Labor	9.52	33.62	65.30	92.38	122.44
Outside Day Labor	13.11	34.55	61.40	91.40	113.91
Monthly Men	32.86	97.00	86.35	146.59	134.48
Average Daily Earnings					
Southern Ohio Field					
Pick Miners	6.17	6.49	7.04	7.68	7.28
Loaders	5.68	5.79	5.90	5.96	5.95
Machine Men	6.68	6.42	7.21	8.03	7.04
Machine Men and Loaders	....	7.19	....	8.77	....
Contract Labor	....	....	....	....	7.08
Inside Day Labor	4.88	4.40	4.44	4.32	5.04
Outside Day Labor	4.32	4.38	4.67	4.53	4.87
Monthly Men	4.21	5.63	5.23	5.33	5.32
Average Monthly Earnings					
Pick Miners	17.90	46.47	91.50	113.85	152.07
Loaders	14.04	25.41	72.67	85.96	91.28
Machine Men	16.35	23.54	75.73	127.49	122.15
Machine Men and Loaders	....	57.50	....	131.60	....
Contract Labor	....	....	....	....	177.00
Inside Day Labor	11.91	18.04	54.15	65.53	112.48
Outside Day Labor	10.48	18.37	57.02	68.59	109.66
Monthly Men	11.80	28.78	76.25	127.64	142.22
Average Daily Earnings					
Fifth and Ninth District Illinois Field					
Pick Miners	5.52	6.80	6.47	7.25	6.46
Loaders	6.58	6.82	7.03	7.42	6.22
Machine Men	6.71	6.50	6.81	7.94	6.36
Inside Day Labor	4.93	5.10	5.01	4.82	5.18
Outside Day Labor	4.73	5.05	4.71	4.72	4.95
Contract and Gang Labor	....	....	....	....	6.35
Monthly Men	....	4.39	7.19	5.58	5.44
Machine Men and Loaders	6.08	6.43	6.47	6.68	6.54
Average Monthly Earnings					
Pick Miners	11.51	27.04	72.36	115.31	106.55
Loaders	15.52	27.15	77.82	99.73	114.82
Machine Men	12.51	26.71	69.24	103.89	119.59
Inside Day Labor	8.87	20.10	54.16	70.65	95.91
Outside Day Labor	12.03	17.63	49.78	76.62	106.41
Contract and Gang Labor	....	....	....	....	197.00
Monthly Men	....	9.88	121.00	53.00	157.59
Machine Men and Loaders	20.55	55.63	89.28	134.95	158.07
Average Daily Earnings					
Freeport Thick Vein District, Pennsylvania					
Loaders	5.57	6.55	7.33	6.90	6.06
Machine Men	8.68	13.17	12.10	10.81	9.74
Inside Day Labor	4.99	5.23	5.37	5.21	5.44
Outside Day Labor	2.86	4.45	4.41	4.66	4.92
Monthly Men	4.00	3.50	4.77	5.16	5.21
Average Monthly Earnings					
Loaders	18.29	61.73	118.19	151.39	147.19
Machine Men	19.71	128.90	193.40	243.44	258.03
Inside Day Labor	17.17	49.73	84.39	121.16	147.26
Outside Day Labor	5.85	43.82	70.45	108.51	136.38
Monthly Men	16.00	28.00	74.67	105.80	154.25
Average Daily Earnings					
Michigan Field					
Pick Miners	5.85	7.28	7.94	7.88	8.02
Loaders	5.22	6.16	6.71	6.94	6.40
Machine Men	6.21	6.92	8.96	8.65	5.93
Inside Day Labor	4.74	5.01	5.10	4.65	5.01
Outside Day Labor	5.60	4.45	4.57	4.56	4.74
Monthly Men	....	5.00	....	6.15	5.13
Average Monthly Earnings					
Pick Miners	18.45	50.23	105.47	146.64	153.35
Loaders	16.28	39.06	87.99	129.44	140.74
Machine Men	30.00	49.41	100.58	164.75	116.79
Inside Day Labor	11.32	33.20	65.98	86.69	124.47
Outside Day Labor	16.69	27.43	62.58	82.68	119.60
Monthly Men	....	10.00	....	151.38	119.67
Average Daily Earnings					
Iowa Field					
Pick Miners	6.28	7.23	7.71	7.74	7.34
Loaders	5.77	6.15	6.37	6.56	6.09
Machine Men	7.34	8.82	8.23	7.87	6.82
Inside Day Labor	4.58	4.82	4.82	4.36	4.98
Outside Day Labor	4.23	4.48	4.72	4.42	4.81
Monthly Men	4.80	....	....	4.40	4.79
Average Monthly Earnings					
Pick Miners	15.41	42.68	87.93	110.24	119.25
Loaders	16.70	46.57	74.30	105.54	100.08
Machine Men	11.09	70.57	77.00	120.38	100.15
Inside Day Labor	9.89	33.24	58.04	75.89	98.92
Outside Day Labor	9.69	28.71	56.70	76.83	108.39
Monthly Men	8.00	....	....	96.08	142.85
Average Daily Earnings					
Kansas Field					
Pick Miners	5.12	5.63	5.87	6.42	5.68
Loaders	....	3.00	7.58	6.48	6.97
Machine Men	6.00	5.67	....	5.46	6.14

	Worked				
	Under 25 Per Cent	25 to 49 Per Cent	50 to 74 Per Cent	75 to 100 Per Cent	More than mine
Inside Day Labor	4.86	5.03	5.32	5.41	5.22
Outside Day Labor	5.82	5.10	5.14	5.05	5.38
Monthly Men	7.50	7.50	6.91	6.28	5.50
Machine Men and Loaders	....	....	5.86	6.45	6.21
	Average Monthly Earnings				
Pick Miners	13.96	46.75	81.73	122.74	139.56
Loaders	....	30.00	116.80	139.25	175.59
Machine Men	18.00	17.00	....	78.71	149.01
Inside Day Labor	8.81	41.94	71.88	109.47	129.13
Outside Day Labor	12.23	29.46	69.84	91.08	129.66
Monthly Men	18.00	57.50	95.71	132.88	152.58
Machine Men and Loaders	....	....	102.50	130.17	116.56
Average Daily Earnings					
Missouri Field					
Pick Miners	4.16	4.55	4.92	5.51	6.60
Loaders	4.54	5.23	5.48	6.27	6.18
Machine Men	5.28	4.40	4.80	5.03	5.18
Inside Day Labor	4.96	4.97	4.97	4.94	5.11
Outside Day Labor	4.85	4.85	4.59	4.78	5.28
Monthly Men	....	....	3.12	3.33	2.84
Average Monthly Earnings					
Pick Miners	10.90	26.76	64.78	97.01	104.71
Loaders	12.73	34.94	71.46	101.36	118.38
Machine Men	13.97	35.57	69.71	97.66	66.48
Inside Day Labor	14.42	33.86	64.93	99.90	109.23
Outside Day Labor	9.18	23.81	52.33	82.13	120.01
Monthly Men	....	....	50.00	60.00	85.54
Average Daily Earnings					
Arkansas Field					
Pick Miners	6.93	7.05	7.77	8.43	5.66
Loaders	4.27	5.43	5.94	7.08	5.87
Machine Men	4.50	5.65	6.14	6.29	6.07
Inside Day Labor	5.27	4.95	5.07	5.10	5.25
Outside Day Labor	4.52	4.79	4.56	4.69	5.04
Monthly Men	....	....	....	....	5.15
Average Monthly Earnings					
Pick Miners	15.82	46.59	84.79	113.70	118.66
Loaders	8.15	28.65	57.36	99.83	63.21
Machine Men	18.00	37.66	70.00	80.86	129.81
Inside Day Labor	11.33	26.16	55.36	74.48	103.51
Outside Day Labor	9.05	30.20	50.60	72.52	113.85
Monthly	....	....	....	....	153.44

Table III. Earnings of Steady Miners

Occupation	Average number of men per month, working full time and one day less	Per cent of average number of men per month	Average Daily Earnings	Average Monthly Earnings	Average days worked per month.
Pittsburgh Thin Vein Field					
Pick Miners	133	25.63	6.76	131.20	19.42
Loaders	637	31.91	6.06	113.72	18.76
Machine Men	132	46.48	7.34	154.53	21.05
Machine Men and Loaders	13	65.00	8.06	175.36	21.77
Ohio No. 8 Field					
Pick Miners	24	63.16	7.49	112.77	15.06
Loaders	847	38.89	6.06	105.79	17.45
Machine Men	204	55.74	6.91	128.07	18.54
Southern Ohio Field					
Pick Miners	18	35.29	8.01	110.03	13.74
Loaders	703	29.16	5.83	48.96	8.40
Machine Men	154	60.16	7.93	113.56	14.31
Indiana Field					
Pick Miners	606	45.87	7.19	100.72	14.03
Loaders	1,161	54.08	6.98	89.33	12.80
Machine Men	208	63.22	8.37	124.73	14.91
Contract Labor	8	34.78	7.21	135.18	18.75
Fifth and Ninth Districts, Illinois Field					
Pick Miners	152	32.83	7.20	98.61	13.70
Loaders	1,378	64.36	7.49	93.18	12.43
Machine Men	194	61.59	7.95	99.51	12.51
Machine Men and Loaders	24	21.62	6.96	149.93	21.55
Freeport Thick Vein Field of Pennsylvania					
Loaders	124	24.41	6.70	156.46	23.35
Machine Men	18	27.27	10.65	251.63	23.63
Michigan Field					
Pick Miners	8	40.00	7.94	146.06	18.41
Loaders	213	46.30	6.99	129.51	18.53
Machine Men	47	73.44	8.73	166.76	19.10
Iowa Field					
Pick Miners	249	39.46	7.83	107.30	13.71
Loaders	43	27.04	6.58	104.56	15.89
Machine Men	12	48.00	8.01	124.69	15.57
Missouri Field					
Pick Miners	80	33.76	5.73	98.71	17.21
Loaders	157	50.16	6.49	102.56	15.81
Machine Men	32	28.57	5.15	98.15	19.07
Kansas Field					
Pick Miners	416	35.22	6.62	131.62	19.88
Loaders	7	100.00	6.83	111.62	16.34
Machine Men	1	12.5	5.38	64.50	12.00
Machine Men and Loaders	1	50.00	6.81	143.00	21.00



FOREIGN MARKETS AND EXPORT NEWS

High Coal Prices in China

As the high price of coal in Tientsin and Shanghai is an obstacle to the investment of American money in cotton mills there, counterbalancing to a considerable extent the advantages of cheap labor, a recently compiled table of prices may prove interesting, although, in view of the fact that prices constantly fluctuate, it can not be accepted as a standard price list.

Coal is sold from the yard in Tientsin at lower prices than at Taku Bar in the harbor because of the competition of mines in the vicinity of Peking which ship their coal by rail and also because the cost of lighterage over the bar must be included in the latter prices. Manufacturers say that the cost of electric power in Shanghai is lower than in any other place in the world and that the output per Chinese workman of certain articles is as great as the output per workman in the United States.

The Kailin Mining Administration quotes as follows, per long ton (A = f.o.b. steamer alongside wharf at Chinwangtao, export duty paid; B = f.o.b. steamer at Taku Bar, near Tientsin; C = for delivery ex Hotung Yard, Tientsin):

	A	B	C
Loco lump	$9.00	$10.00	$9.00
Linsi lump	7.10	8.10	7.10
No. 1 slack	6.50	7.00	6.10
No. 2 slack	5.35	6.35	5.35

Mexico Imports 89 Per Cent of United States Coal

Consul Cornelius Ferris, Jr., Mexico City, Jan. 31, 1920, states that statistics have just been received from the Mexican Department of Commerce showing the importation of coal into Mexico for the year 1918, statistics for other years not being available. The total amount imported in 1918 was 132,209 tons. Approximately 89 per cent of this was imported at points on the United States frontier, and was for mining and smelting operations and railroad motive power; the remainder was imported at seaports for coaling vessels.

British Export Licenses for Coal-Tar Products

Consul General Skinner has cabled from London under date of Feb. 19, 1920, that the British Board of Trade announces that export licenses for the exportation of all coal-tar products excepting finished dyestuffs, but including aniline oils and salts, granted before Jan. 1, 1920, are revoked. The revocation is to take effect Feb. 21, 1920. Applications for the renewal of licenses will be considered if special cause is shown.

Heraclea Source of Coal for Italy

Commercial Attaché Alfred P. Dennis, Rome, Italy, Jan. 6, 1920, states that the high prices of English and American coal, together with transportation difficulties, have caused Italians to turn their eyes anxiously toward Asia Minor as a possible source of coal supply. There has been much in the papers as to the immense reserves of coal in the Heraclea (Eregli) basin, and emphasis has been laid upon the fact that Italian interests have been upon the ground for some time with a view to developing coal-mining concessions in that region. The carboniferous basin of Heraclea lies within the region still under Turkish sovereignty and the actual mining of coal is conducted under concessions from the Turkish Government.

The cost of getting a ton of coal from the Black Sea ports to Constantinople is 13 Turkish pounds, or 156 Italian lire, $12 per ton at the present rates of exchange. When it is considered that American coal is transported 4,000 miles to Italy at a freight charge of $25 a ton, the charges for this 150-mile haul are substantial, to say the least. Furthermore, the best Welsh coal can be laid down in Constantinople for around 400 lire a ton, while the prices on the inferior Heraclea coal range around 375 lire a ton. The chief factors in the high costs are the primitive methods employed in mining and transporting the coal.

Quality of Coal

The quality of the Heraclea coal is poor in calorific energy; it averages 6,344 calories for mine-run and 7,645 for washed coal, with an average ash content of 18 per cent. A coal is judged rather inferior that does not range up to 8,000 calories. The Heraclea coal is quite friable.

Bohemia's Coal Production

In 1917, states the *Colliery Guardian*, the Bohemian coal mines produced 3,318,277 tons of coal, as follows: Mies, 979,174 tons; Pilsen, 169,801 tons; Prague, 371,233 tons; Schlan, 1,798,069 tons. The output in 1916 was 3,779,421 tons. The number of workers, however, increased from 16,630 to 18,741, giving a production per capita of 227 and 177 respectively. The average selling price per ton was 21.7 kr. in 1917 and 15.95 kr. in 1916.

In addition, there were produced in 1917, 17,794,964 tons of brown coal, valued at 9.93 kr. per ton, as against 18,902,513 tons, valued at 6.68 kr. per ton, in 1916; 31,992 work people were employed, as against 26,641, giving an average output per head of 556 tons in 1917, as against 710 tons in 1916. In 1917, 3,685,869 tons of brown coal and 186,758 tons of coal were exported by rail, and 409,787 tons of brown coal and 466 tons of coal by water.

The rail-borne exports of brown coal were distributed as follow: Saxon State Railways, 1,908,526 tons; Bavarian State Railways, 1,381,404 tons; Prussian State Railways (including coal transferred from barges into wagons in the Elbe ports), 311,460 tons; Wurtemburg State Railways and other systems in Southern Germany and Swiss and Italian lines, 12,479 tons. The bulk of the coal was carried over the Bavarian State Railways.

United States Coal is Sent to Ends of the Earth

Evidence that America is supplanting Geat Britain in coal markets of South America and Europe is seen by the *Shipping World*, London. The paper attributes this to restrictions imposed on shipping that otherwise might be available for carrying British coal.

"The result is that traders abroad who want coal are getting it from other regions," it says; "The South American trade has fallen almost inevitably into the hands of ship owners from the United States; but more ominous still is the fact that shipments from Virginia are coming almost daily to ports of Europe.

"Gothenburg, Dunkirk, Antwerp, Rotterdam, Lisbon, Genoa and other ports of Italy are receiving American coal at freight rates which only their urgent needs can justify. Even to Port Said American coal has been shipped.

"The question arises whether this is merely a passing phase due to the present scarcity of tonnage, or whether these American ships are the pioneers of a few forms of enterprise of the Western continent which is destined to become a permanent feature of trade.

"It must not be assumed that with the increase of British shipping that will assuredly come in a year or two, the old lines of trade will so easily be regained. The River Plate trade may to a considerable extent be written off.

"The greater proximity of European ports to the United Kingdom will be an advantage to British ship owners in their endeavor to regain the continental trade, but it will be no easy task to break the trade connections that American competitors are now engaged in forming."

Shipment of Coal in Tons to Foreign Countries and British Possessions from the Various Districts in the United Kingdom in 1919*

	Bristol Channel Ports	North-western Ports	North-eastern Ports	Humber Ports	Other Ports on the East Coast	Other English Ports	East Scotland	West Scotland	United Kingdom
January	1,582,184	38,057	589,256	70,702	1,580	45	39,445	28,304	2,349,573
February	1,407,993	8,652	1,078,211	68,336	2,036	57	90,087	53,867	2,709,239
March	2,430,618	6,561	1,230,494	20,033	661	35	116,331	75,895	3,880,628
April	1,560,183	242	800,517	5,723	2,466	35	142,374	56,556	2,568,096
May	2,307,716	7,123	1,154,691	29,829	4,548	..	211,397	81,772	3,797,076
June	1,793,104	4,836	1,098,803	81,532	13,531	10	193,809	72,817	3,258,442
July	1,664,788	3,662	1,315,705	84,120	4,131	14	241,692	113,444	3,427,556
August	1,297,214	12,140	635,783	7,871	3,616	25	151,988	62,176	2,170,813
September	1,553,015	658	984,037	887	5,080	20	102,951	30,541	2,677,189
October	1,542,029	714	911,555	10,574	966	174	204,742	58,871	2,729,625
November	1,581,508	2,806	863,571	48,151	3,301	201	189,388	58,550	2,747,476
December	1,509,450	1,277	1,038,812	102,713	7,473	52	220,972	53,106	2,933,855
Total	20,229,802	86,728	11,701,435	530,471	49,389	668	1,905,176	745,899	35,249,568

*Courtesy of *Colliery Guardian*.

Domestic Exports of Coal and Coke—Bunker Coal Supplied to Vessels in the Foreign Trade During January, 1920*

Countries	Coal: Anthracite 172 Tons	Coal: Bituminous 173 Tons	Coke 174 Tons
Azores and Madeira Islands	.....	2,420	.....
Belgium	.....	.....	*1,467
Denmark	.....	17,843	.....
France	2,234	50,337	2,270
Germany	.....	12,812	.....
Italy	3,009	128,502	.....
Netherlands	.....	112,846	.....
Norway	.....	5,427	174
Portugal	.....	8,830	.....
Sweden	.....	4,035	.....
Switzerland	.....	33,438	.....
Turkey in Europe	.....	6,553	.....
England	2	1,085	.....
Bermuda	.....	8,096	1
British Honduras	.....	51	3
Canada	291,542	457,909	29,424
Guatemala	51	100	6
Honduras	450	550	2
Panama	.....	34,067	.....
Mexico	530	6,197	19,286
Newfoundland and Labrador	2,727	25	.....
Barbados	9	3,904	.....
Jamaica	50	8,609	.....
Other British West Indies	1	7,207	3
Cuba	4,263	99,620	12
Danish West Indies	.....	.....	2
French West Indies	.....	2,820	.....
Haiti	2	.....	.....
Dominican Republic	1,199	672	.....
Argentina	.....	145,455	.....
Brazil	.....	48,205	50
Chile	.....	3,311	5,241
Colombia	.....	10	3
Ecuador	.....	.....	5
Falkland Islands	.....	3,073	.....
Peru	.....	60	75
Uruguay	.....	11,405	.....
Venezuela	.....	.....	2
French Africa	.....	23,693	.....
Total	306,069	1,249,167	58,026

Customs Districts	Coal: Anthracite 172 Tons	Coal: Bituminous 173 Tons	Coke 174 Tons
Maine and New Hampshire	83	.....	153
Vermont	1,251	867	502
Massachusetts	291	25	.....
St. Lawrence	70,901	65,324	1,136
Rochester	3,939	29,832	145
Buffalo	212,070	262,980	13,032
New York	10,515	95	2,516
Philadelphia	4,258	68,441	.....
Maryland	.....	139,118	6,708
Virginia	.....	535,221	1
South Carolina	.....	23,583	.....
Georgia	.....	7,533	.....
Florida	.....	5,159	.....
Mobile	.....	3,621	.....
New Orleans	493	.....	41
Sabine	.....	42	.....
San Antonio	240	918	44
El Paso	236	4,515	9,882
Arizona	2	715	9,333
Southern California	10	6	.....
San Francisco	50	1,001	77
Washington	304	151	44
Dakota	746	2,372	554
Duluth and Superior	508	7,943	.....
Michigan	97	83,480	13,858
Ohio	.....	6,045	.....
Porto Rico	75	180	.....
Total	306,069	1,249,167	58,026

BUNKER COAL

Customs Districts	Tons
Maryland	42,479
New York	43,996
Philadelphia	27,198
Virginia	158,637

*From a report of the Department of Commerce.

England Adopts American Industrial Policies

It is estimated that the electric power industry in Great Britain is wasting 55,000,000 tons of coal annually, according to a report on British Industrial Reconstruction and Commercial Policies, just issued by the Bureau of Foreign and Domestic Commerce, Department of Commerce. The cause of this waste lies largely in lack of centralization and standardization. "In the area of London alone," says the report, "are 70 authorities that supply electricity to the public, owning 70 generating stations, with 50 different types of systems, 10 different frequencies, and 24 different voltages."

The average generatng capacity of the 600 establishments in England that sell electric current is only 5,000 horsepower each. This is about one-fourth the capacity of a generating plant of economical size. So unorganized is the whole electrical industry that "one can not purchase a simple electric bulb without specifying the partcular type of socket" in which it is to be used.

Coal Production in Venezuela Shows Decrease

Consul H. C. von Struve, La Guaira, Jan. 26, 1920, states that there has been a gradual increase in the output of coal in Venezuela, as shown by the following statistics, the quantity being in long tons of 2,240 pounds: Average of 1911-13, 6,222; 1914, 8,755; 1915, 13,551; 1916, 18,289; 1917, 19,846; 1918, 24,779. Statistics for 1919 are not yet available.

The imports of coal were as follows: Average for 1911-13, 19,676 tons; 1914, 23,280; 1915, 19,305; 1916, 20,243; 1917, 14,927; 1918, 8,746.

Years	From United States Tons	From Great Britain Tons	From Holland Tons	From Germany Tons
Average for 1911–1913	3,268	14,246	331	1,660
1914	3,982	12,573	5,840	885
1915	11,216	6,721	1,368	....
1916	10,110	9,802	331	....
1917	10,266	4,662	....	....
1918	4,570	4,176	....	....

The only exports of coal shown are 500 tons in 1916, 2,000 tons in 1917, and 340 tons in 1918. These shipments were all made to Curaçao and were doubtless due to the difficulty of obtaining coal in the United States and Great Britain during those years, owing to war conditions.

The coal produced is practically all mined at Naricual, Capiricual, and Tocoropo near Barcelona and a railroad line has been built especially to transport this coal to the port of Guanta. Both mines and railroad are operated by the national government.

Coal imported at La Guaira is partly used there and partly carried by railroad to Caracas; that imported at Puerto Cabello is used principally in that town, but some of it is carried inland by a railroad line extending from Puerto Cabello to Caracas.

Coal Situation in Vienna Becomes Acute

The coal situation in Vienna is so acute, owing to the German railway strikes, the strike of miners in the Ostrau coal field, and the discontinuances of supplies from Poland, states the *Colliery Guardian*, that the Ministry of Commerce has ordered the complete suspension of the tram service and the closing of all places of amusement, including the theatres and cinemas.

Further restrictions are also placed on the consumption of electric current for lighting purposes, and almost the entire supply of electric power for industry has been suspended, as from Feb. 16.

Belgian Coal Owners Protest Interference by Government

The coal owners of the Charleroi have registered an emphatic protest, states the *Colliery Guardian*, against the action of M. Wauters in dispossessing them of their rights to discuss points at issue with their workmen, and asserting that the new charges upon the industry will involve an increase in cost of 10 fr. per ton on coal, 15 fr. on boulets, and 20 fr. on briquettes. It is stated, moreover, that the Minister's procedure has not given complete satisfaction in Government circles.

There is a great shortage of rolling stock, and in some cases two-thirds of the output is being placed to stock, whilst the night shift has been discontinued at the briquette factories. The Minister of Economic Affairs has now authorized an increase of 6.50 fr. per ton to compensate for the supplementary charges involved by the recent rise in wages. This is regarded, however, as a provisional adjustment, and an investigation into the cost of production and profits is to take place immediately.

As some indication of the enormous rise in prices, it may be stated that the smalls used on the State Railways will now realize 66.50 fr., as compared with 16 fr. on July 1, 1914. Thomas pig has risen from 61 fr. to 600 fr., steel bars from 115 fr. to 900 fr., and cement from 25 fr. to 135 fr.

The position in Birmingham, Eng., is difficult. Merchants complain, states the *Colliery Guardian*, that supplies are not coming through freely from the collieries. Emergency stocks are fast disappearing, and householders are on small rations. Nuts are in constant demand, but supply is short.

New York Anthracite Exports for January Increased

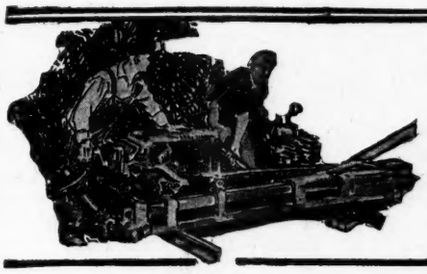
Compared with January of last year, there was more anthracite and coke shipped through the port of New York in January of this year. Shipment of bituminous showed decreases when compared with the corresponding month of last year.

During January anthracite was sent to eleven countries as compared with three countries in January of last year, bituminous was shipped to four countries in January of this year as compared with six shipments a year ago, and coke was shipped to eight countries in both months.

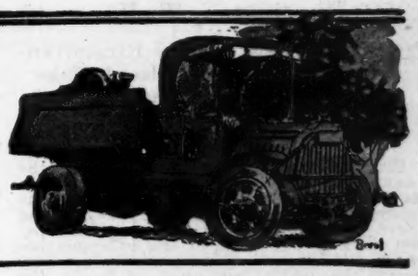
The following tabulation shows the shipment of anthracite, bituminous and coke in January of this year as compared with January of last year. The total anthracite shipment for January 1920 was 10,515 tons.

SHIPMENTS FROM NEW YORK DURING JANUARY, 1919, AND JANUARY, 1920, COMPARED

Country	Anthracite 1919 Tons	Anthracite 1919 Value	Anthracite 1920 Tons	Anthracite 1920 Value	Bituminous 1919 Tons	Bituminous 1919 Value	Bituminous 1920 Tons	Bituminous 1920 Value	Coke 1919 Tons	Coke 1919 Value	Coke 1920 Tons	Coke 1920 Value
Argentina	.....	.....	.....	.....	700	$5,600	.....	.....	.....	.....	.....	.....
Barbadoa	.....	.....	9	$142	.....	.....	.....	.....	.....	.....	.....	.....
Brazil	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50	$564
Canada	8,375	$69,839	1,572	$13,533	524	$4,223	.....	.....	.....	.....	.....	.....
Colombia	.....	.....	.....	.....	.....	.....	10	$280	.....	.....	3	75
Cuba	.....	.....	5	94	.....	.....	.....	.....	15	$430	12	300
Danish W. I.	.....	.....	.....	.....	508	3,404	.....	.....	.....	.....	2	60
Ecuador	.....	.....	.....	.....	.....	.....	.....	.....	16	360	.....	.....
England	.....	.....	2	20	.....	.....	.....	.....	.....	.....	.....	.....
France	.....	.....	2,234	26,951	.....	.....	23	253	.....	.....	2,270	32,400
French W. I.	.....	.....	.....	.....	.....	.....	.....	.....	6	168	.....	.....
Haiti	.....	.....	2	37	.....	.....	.....	.....	.....	.....	.....	.....
Italy	.....	.....	3,009	32,487	1,349	10,117	.....	.....	.....	.....	.....	.....
Jamaica	.....	.....	50	938	.....	.....	.....	.....	.....	.....	.....	.....
Mexico	.....	.....	.....	.....	32	463	.....	.....	2	80	.....	.....
Newfoundland	87	702	507	21,316	.....	.....	.....	.....	.....	.....	.....	.....
Norway	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	174	1,897
Other British West Indies	.....	.....	1	15	.....	.....	.....	.....	.....	.....	3	70
Panama	.....	.....	.....	.....	.....	.....	2	20	.....	.....	.....	.....
Paraguay	.....	.....	.....	.....	.....	.....	.....	.....	3	115	.....	.....
Peru	.....	.....	.....	.....	55	1,301	60	1,076	55	1,650	.....	.....
Salvador	.....	.....	.....	.....	.....	.....	.....	.....	3	63	.....	.....
San Domingo	1,905	13,734	1,024	9,264	.....	.....	.....	.....	.....	.....	.....	.....
Venezuela	.....	.....	.....	.....	.....	.....	.....	.....	470	13,225	2	51
Totals	10,367	$84,275	10,515	$104,797	3,168	$25,108	95	$1,629	570	$16,091	2,516	$35,497



COAL AND COKE NEWS



Charleston, W. Va.

Mines Produce 50 Per Cent of Capacity No Change in Kanawba Output Variable New River Supply —No Hope for Exports

Variation from conditions existing during February was hardly observable in this section of the state at the outset for March, the transition from Government control to private ownership appearing to make little difference, from a transportation standpoint, at the start at least. Most fields had the usual large Monday supply which lasted about one day. As far as the Chesapeake & Ohio R.R., which supplies this section, was concerned there was possibly a slight increase in the number of empties furnished, but notwithstanding that fact, shipments from some regions were somewhat under even the loadings of the previous Monday.

Lack of proper transportation facilities, pure and simple, was principally instrumental in retarding production in this area. Because of such a lack mines were still unable to produce to a point beyond 50 per cent of potential capacity. No other factors entered into the limited output to any appreciable extent. The total tonnage handled by the Chesapeake & Ohio on March 1. was 143,000 tons.

The general impression seemed to prevail that while the number of cars furnished had been somewhat larger than anticipated, nevertheless there would be a marked decrease in cars for several weeks, owing to the effort on the part of railroads to corral their own equipment and to use the equipment of other roads, especially in view of the fact that the per diem rate was not such as to hurry railroads in sending cars back to home roads.

A large part of the tonnage produced in this section of West Virginia was used in meeting the needs of the railroads. In many instances confiscation was still being resorted to in order to secure railroad fuel, though it was the general opinion that such confiscation was not quite so general as it had been under Government control. Export shippers were required to secure renewal of licenses or permits, that entailing a good deal of confusion in many quarters. Furthermore, it was stated during the first week of private ownership, that until there was a sufficient production to more than meet the domestic demand, little might be expected in the way of an increase in export shipments.

Kanawha Output 50 Per Cent

The output of the Kanawha field, during the first week of March, was about on the same plane that it had been during the previous week; production not averaging more than about 50 per cent of normal. In other words the average daily loadings throughout the first week of the month were about 17,000 tons. A larger production than that became impossible owing to the scarcity of cars. There was a material decrease in the supply for the Kanawha field during the week, as the result first of a slide and then a freight wreck at Sandstone, Thursday night, empties not only being held up behind the wreck, but the movement of coal being interfered with quite materially.

A heavy demand is predicted in the Northwest when the Lake season is opened, and producers are of the opinion that it is going to be difficult to meet such a demand unless there is a material improvement in transportation conditions. With a limited number of cars, the shipments for one day fell as low as 12,000 tons in this field.

The end of Government control did not generally bring about a cessation of coal confiscation, since much fuel was still being seized during the first week of March, though such confiscation was believed not to have been on as large a scale as during previous weeks.

The curve of production varied to quite a material extent in the New River field at the outset of March. The first day of the week witnessed a fairly large production; for several days after that production was decidedly on the down grade, until the last day of the week when mines took a sudden spurt, owing to an increase in the car supply. Aside from the two days mentioned, production was curtailed to the extent of about one-half, solely because of an inadequate car supply, the supply in fact during the greater part of the week being just about 50 per cent.

Weather conditions were decidedly unfavorable during the greater part of the week to large shipments of coal. Traffic on the Chesapeake & Ohio was suspended in the neighborhood of Hinton on Friday, the fifth, through a slide followed by a freight wreck.

While it had been hoped that export shipments might be resumed on their former scale, such hope now has been abandoned by New River coal men, at least until there is a larger supply of coal available for this country. When the Lake season opens, the demand for all grades of coal will be increased, but operators generally feel that it will be difficult to meet the heavy demand in the Northwest owing to poor transportation facilities.

Bluefield, W. Va.

Decrease in Output of Smokeless Mines —Plants Work One or Two Days— Tug River Loads Frozen Solid— Pocahontas Issues S. O. S.

Mines in southern West Virginia in the smokeless area suffered to a greater extent from a car shortage than during any previous week of 1920, as a result of which production took another drop. While there was a slight improvement in other sections of the state during the first week of the month, conditions were far worse in Norfolk Western territory especially during the early part of the week. The supply of cars was so scarce at one time as to make the transportation question one of grave concern; it even became necessary to appoint a committee of operators to call on railroad executives in the hope of securing relief.

While the last week of February had been bad enough, from a transportation standpoint, the first week of March was worse. The car supply was so uncertain, so irregular and so scant that it hardly paid the larger companies to attempt to keep their mines going; while on the other hand the smaller companies were practically without cars and were unable to operate to any appreciable extent. Taking southern West Virginia as a whole, it is considered doubtful if the number of empties furnished reached more than 40 per cent of the normal supply.

While it was believed in the southern part of the state, during the first week of March, that there would be a gradual improvement after the adjustment stage of the railroads had been passed, yet the first week of the month was not conducive to any betterment of conditions, and apprehension was expressed that smaller companies might be seriously affected from a financial standpoint. With mines without number reduced to a point, where they were not able to operate more than one or two full days during the entire week, production of course was bound to undergo a marked decrease.

Highly unfavorable weather conditions prevailing throughout the entire week, only served to demoralize the transportation of coal. It was impossible either to move coal after it was loaded, with any degree of celerity, or to distribute empties with any promptness; at one stage of the week, one field in southern West Virginia was deprived of almost its full car supply.

The chronic car shortage is making for labor unrest in the southern end of the state, since miners are only able to make a fraction of their former earnings. In an endeavor to find more work, miners are beginning to drift from one field to another, and that of course disorganizes operations to quite an appreciable extent.

Car shortage gave production a downward trend in the Tug River region during the first week of March, the output being only 57,850 net tons, the lowest since the week ended Jan. 24. The weather was unusually severe in the region and was a potent factor in making the movement of coal extremely sluggish.

Adverse Conditions on Tug River

Tug River operators were more and more impressed at the outset of March, that a very large number of loads handled under the regime of the Railroad Administration, and passed on from one road to another during the winter months, had been exposed to the weather for so long a period, that they became frozen solid and could not be unloaded. This had been currently reported as one of the causes contributing to the shortage of empties; although Government control has been made effective to the end of April, there was in evidence at the outset of March, a rather more optimistic feeling in the industry than has been observed for some time.

Under date of March 5, a new priority list was promulgated by the Director General of Railroads; it was received in the Tug River field and provided primarily for ten classes of railroad needs and secondly for tidewater shipments. It is predicted in the region that such a priority list will just about do away with export business while the order continues in effect.

Car service in the Winding Gulf field, during the week ended March 6, was such as to enable the mines here to load a little more coal than during the previous week, although the supply of empties was far below normal. Coal movement on the Virginian was seriously hampered during the week by lack of motive power, which condition is becoming somewhat chronic. Little or no improvement in the car supply furnished by the Chesapeake & Ohio was observable. That road was badly handicapped during the first week of the month by two freight wrecks—one at Gauley Bridge, W. Va., and one at Sandstone, W. Va. Each wreck tied up freight traffic for many hours, affecting both the movement of coal and the distribution of empties.

Car Famine in Pocahontas Field

Little or no change in conditions was observed in the Pocahontas region in the period between March 1 and March 6, the usual large supply of cars in evidence at the beginning of the week lasting for a shorter period than usual. Once it had been exhausted, mines all over the field found it necessary to shut down and were able to operate during the week only at irregular intervals. As already related the supply of cars, about the middle of the week, reached such a distressingly low point that it became necessary for a special committee of operators to send out a call to Norfolk & Western headquarters for relief.

Production and loss, as a result of inadequate transportation facilities, was about a "fifty-fifty" proposition, mine disability and labor losses having little to do with such a loss in production as was sustained. With the disappearance of the influenza from many mining communities, the labor supply when March opened was about 95 per cent of normal. Owing to the shortage of cars, however, smaller labor forces would have sufficed to load all the coal for which there was cars.

With nothing to prevent confiscation, after a compliance with certain formalities, and with priority regulations now in force, export shipments do not constitute a very large part of the coal going out from the Pocahontas region. Weather conditions during the first week of March, were not particularly conducive to efficient operation of the railroads and hence the movement of coal was slow.

Huntington, W. Va.

Production Losses Largely Exceed Output in Logan Field—Railroads Take Considerable Coal—Chesapeake & Ohio Moves 11,367 Loads—Gain of 448 Cars

Production slipped several cogs in the Logan field during the first week under individual ownership of the railroads, the aggregate shipments from the field being about 9,000 tons under shipments for the last week of February, or the difference between 186,000 and 177,000 tons. Just how heavy the losses continued to be in the Guyan Valley it was easy to determine when a comparison is made with an output of 250,000 tons a week during the strike.

Ever since the strike was terminated, however, production losses have been far in excess of the amount of coal it has been possible to produce, and the first week of the month proved to be no exception in that respect; the car shortage cut into production to the extent of fully 50 per cent, costing the production more than 200,000 tons.

Figures covering February production disclose the startling fact that but for a car shortage, it would have been possible to produce 929,000 or almost one million tons more than was the case, the loss for the month from a scarcity of cars running up to 56 per cent. The total production for the Logan field in fact was only about 44 per cent of capacity.

When, with almost 1,000 cars on hand at the beginning of the first week of the month, the coal mined reached almost 50,000 tons, operators thought such a large run of cars might reflect an improvement in the supply. In that respect producers were doomed to disappointment, the daily supply of cars for the rest of the week fluctuating between 400 and 500.

Not all the coal produced was by any means reaching commercial consumers, the demands of the railroads being such as to require a large portion of the Logan tonnage, though the tonnage confiscated was far less than had been the rule during previous weeks.

In its first week under private control, the Chesapeake & Ohio managed to handle a somewhat larger volume of coal than during any week of February, although the gain was nothing to boast of. During the first week of the month the Chesapeake & Ohio moved over its roads 11,367 loads of coal, or a tonnage of 568,350, as compared with a movement of 10,919 cars, or 545,950 tons, during the last week of February, so that the additional number of cars amounted to 448.

Fairmont, W. Va.

Improved Car Service Under Private Ownership—Car Supply About Fifty Per Cent—Output Largely Taken by Railroads—Exports Precluded

If car service furnished during the first week of March, at least on the Baltimore & Ohio in northern West Virginia, be any criterion of what may be expected under private ownership, then there has been a material improvement in northern West Virginia; for the supply of cars in that part of the state, during the first week of the month was far superior to that in evidence at the end of February. However, operations were still being seriously curtailed because of the limited supply of cars.

It should be remembered, however, that the last week of February ranked as one of the poorest in recent years, as far as the supply of empties was concerned; it being partly responsible for the poor showing made in the second month of the year, when loadings fell below those for January to the extent of 5,906 cars. Nevertheless coke production and shipments during the second month outdistances those for the first month. More cars were available during the first six days of March than had been the case during the preceding weeks. Despite the improvement in the supply of empties, the middle of the week found about 91 mines idle, and on Thursday on the Monongah division of the Baltimore & Ohio, less than 400 cars were furnished, 145 mines being reduced to idleness on the day in question.

Conditions described as existing in the Fairmont region, were largely true in other northern West Virginia fields. The supply for the week was about 50 per cent. Notwithstanding conditions credit was given officials of the Baltimore & Ohio for their efforts to maintain a supply at least partly sufficient for loading. Transportation conditions on the Monongahela R.R. were not quite so favorable as on other roads during the week, the supply for this period being about 30 per cent. The Baltimore & Ohio was seriously in need of coal during the week and that might account for the unusual effort made to keep the mines supplied. At the same time the operators were willing to co-operate in order to secure cars.

The largest proportion of the output of the Fairmont and other regions was being taken by the railroads. Most of the northern West Virginia tonnage was consigned to the East during the first week of the month. Of the coal moved to the West quite a large portion was going to Ohio points as well as to Michigan markets. Curtis Bay shipments seemed to have been increased somewhat during the latter part of the week; but the necessity of taking care of the domestic markets has also precluded and will continue to preclude (in the opinion of mine owners) mines generally from shipping a very large tonnage abroad for several months to come.

Ashland, Ky.

Northeast Kentucky Output Shows Increase Over Preceding Week—Further Car-Shortage Relief Hoped for—More Cars or Serious Labor Turnever

Out of a total potential capacity of 245,000 tons in the northeast Kentucky field, there was produced during the first week of March, 150,125 tons of coal, or 61 per cent of potential capacity; the total production loss, on the other hand being 94,875 tons, or 39 per cent of capacity; all but 3 per cent, or 7,200 tons, having been lost through a car shortage, the loss from that source aggregating 87,675 tons. During the corresponding week of 1919 when there was no market for coal, the output was 103,700 tons.

Tonnage figures given disclose a marked increase over the preceding week; the car-shortage factor remains quite a predominant one, and unless immediate relief is secured, it can be expected that the present labor supply, greatly amplified from other union districts immediately following the recent strike, will suffer from the men seeking employment in other districts where more steady employment is offered; furthermore, the plowing season is approaching during which time large numbers of men temporarily leave the mines in some sections.

The greatly increased operating cost incident to decreasing operating time, occasioned by poor car supply and increased wages during the past two months, have made it necessary for northeast Kentucky operators to secure for their product a price in advance of the present authorized Government figure, consequently they do not feel justified in contracting at Government fixed prices for any lengthy period.

East Liverpool, Ohio

Coal Stripping Opposed in Columbiana County—Legislation Proposed—City Council Discusses Matter—Orchards Reclaim Lands

Plans are being developed here to prevent additional coal-stripping operations in Columbiana County. The movement is being backed in no small manner by Probate Judge Samuel W. Crawford, of Lisbon, the county seat. Lined up with Judge Crawford in this effort is the Trades and Labor Council of East Liverpool.

State Senator Charles A. White and state Represtnative E. M. Crosser of this district are also being interested in the opposition to coal-stripping operations, and it is strongly intimated that legislation will be attempted at the next session of the state Legislature to curb coal stripping throughout the state.

No small amount of land has been either bought or leased in Columbiana County of late for coal stripping. One large option which was permitted to expire, cannot be renewed since opposition to such operations has developed.

A second meeting of the East Liverpool Trades and Labor Council was held here recently, when the idea of fighting any additional coal-stripping plans by the injunction route was discussed.

Coal men who have been planning to operate strippings in this county, have been watching the recent trend of events with unusual interest. Some effort has been made to stay this opposition to such development, but such opposition continues nevertheless. It has been pointed out that in Jefferson and Harrison counties, adjoining, stripped lands are being reclaimed by planting orchards and sowing the land in clover for pasture purposes, but even this scheme, it is said, is not meeting with much favor in the district.

Cadiz, Ohio

Wayne Coal Co. Uses Stripped Coal Land—Plants Peach Trees—Sows Land to Clover—Stocks with Cattle—Unity Coal Co. Pioneer

The Wayne Coal Co., with offices in Steubenville and also in Pittsburgh, Pa., a corporation which is conducting extensive coal-stripping operations in Harrison County and also in Jefferson County adjoining, does not propose to let farm lands so disturbed go to waste.

The method of obtaining coal by stripping has been much discussed, and at one time a bill was introduced in the Ohio Legislature to prohibit this method of obtaining coal, but it was not passed.

That the stripping proposition cuts up farm land is not denied, and to find a use for such land after the coal has been stripped, is a problem that has been talked over by farm interests since it was first introduced.

It now seems as if the Wayne Coal Co., has solved the problem. Ground that was torn up by the company, during one of its early stripping operations, is to be leveled, and 5,000 peach trees will be planted. As stripping operations proceed, more trees will be planted.

In addition to planting trees, the company will also sow these lands to clover, and then will follow the stocking of these farms with cattle, sheep and hogs. This is a matter in which the State Agricultural Station should be largely interested.

The planting of fruit trees, on land which has been stripped for coal-mining purposes, was first taken up and put into practice by the Unity Coal Co., which concern operates stripping propositions in Harrison and Jefferson counties. The advances made along this line by the Unity company have been pronounced a success, and this fact caused the Wayne company to adopt a similar plan to reclaim stripped land for fruit growing purposes.

Victoria, B. C.

Settlers' Right Act May Be Re-enacted—Of Interest to Vancouver Island—Dominion and Provincial Government Issue

It has been announced by Premier Oliver, that the Settlers' Rights Act of 1919, which has been disallowed by the Dominion Government, will be re-enacted at the present session of the Provincial Legislature. The settlers within the Esquimalt & Nanaimo Ry. belt, Vancouver Island, will be given a further extension of time, in which to make application for title to the coal rights in connection with their lands. This assurance was given a delegation, representative of a large body of the claimants, which waited on members of the Government and the Legislature at the Capital City.

It is to be expected, in conformity with the policy of the Dominion Government, that if such legislation is again placed on the statute books of British Columbia, that it will be again disallowed. However, the Provincial Government expresses a determination to maintain the right of the settlers to a fair deal, and it seems likely that the question of jurisdiction between the two administrations will come to a definite issue before long

PENNSYLVANIA

Anthracite

Gordon—The Hillvue Coal Co. has had plans prepared for the construction of a new coal washery at its local mining operations, estimated to cost about $25,000. Frank B. Davenport, Coal Exchange Building, Wilkes-Barre, is engineer for the company. The company's headquarters are at Scranton. F. P. McLaughlin is general manager.

Pittston—Production of anthracite coal during March will be materially reduced as a result of the floods and storms that swept the coal region during the early part of the month. Continuous rains for two days resulted in dozens of mines being

flooded with water. In most cases emergency pumps were able to prevent such high water as to cause suspension, but in two cases in the Pittston district shafts were completely flooded. Heidelberg No. 2 shaft, of the Lehigh Valley Coal Co., and Leadville shaft, No. 9 colliery, Pennsylvania Coal Co., are both out of service. The mine workings are completely flooded, and the water fills the bottom of the shafts, making it necessary in both cases to place steel water buckets in operation in the shafts. As soon as the water has been reduced in the level of the works, the pumps can be started and will aid in removing the flood.

Bituminous

Connellsville—Recently Colonel Lloyd G. McCrum, formerly of this place, Robert E. Beerits, John H. Beerits and Harry Siehl took over the Cherry Run Mining Co., including 500 acres, at Huey, Clarion County. Application has been made for a charter with a capital of $260,000.

Clarion—The Carnegie Steel Co. is getting ready to build the final battery of ovens at its mammoth byproduct coke plant here. Just before the war the company started to construct 1,280 ovens, but the war interrupted the program after 768 had been built. Now it is planned to go on with the work. The building of the additional ovens will require also the construction of about 600 new houses for workmen. There have been about that many houses built since the plant was started.

Masontown—That the H. C. Frick Coke Co. is planning to make Masontown of equal rank with Scottdale as an office center for the company, with the ultimate possibility that this place will become the main headquarters of the coke corporation, is the belief in well-informed Fayette County fuel circles. It was strengthened recently when it became known that option has been secured on the New Mason Hotel, a modern brick structure, for the purpose of converting it into an office building. An option has also been given on a hotel in Smock, it became known at the same time, in which may be installed branch offices for the Redstone region.

WEST VIRGINIA

Welch—The mining men of McDowell County, on March 6, organized the McDowell County Mining Institute with a charter membership of 51. The association after being organized elected the following officers: S. P. Flannagan, president; S. E. Houston, secretary; W. P. Kearns, treasurer; a vice president for each of the various districts in the county as follows: Northfork district, J. A. Shuster; M. Hatmaker, Dry Fork district; H. T. Graham, Anawalt district; H. P. Kline, Davy district; Con Weymouth, Welch district.

Huntington—This city has been selected as the new headquarters of the Logan Operators' Association, announcement to that effect having been made during the first week of the month by A. J. King, who acted as a committee in securing suitable quarters for the offices of the association. A decision was tentatively reached on Feb. 26, to move the offices of the association from Logan to this city, the latter place being more centrally located and more accessible. The Huntington offices will be in charge of J. W. Colley. Associated with Mr. Colley will be a Mr. Manley who will act as traffic manager for the association, this being a newly created position. Mr. Manly before March 1 was connected with the U. S. Railroad Administration as a traffic expert. The new offices of the company will be opened March 15.

Glen White—The regular weekly session of the Glen White Mining Institute, held recently, was largely attended by the officials and employees of the Glen White operation. There was a general discussion on the cutting and shooting of coal, power facilities, underground haulage and housing. Several colored miners took the floor and made a number of good suggestions. Along the line of educational work suggested for the night school curriculum was the teaching of the English language to men of foreign birth. This suggestion was made by a young Italian miner who only came to America six years ago, and who by persistent effort has mastered the language, both oral and written. E. E. White, president and general manager of the company, gave the men a good talk. He advised all to take advantage of the educational facilities provided by the institute, so that they may become fitted for advancement in the business they have chosen.

Wheeling—New directors were elected by the stockholders of the Hanover Coal Company at a recent meeting held at Bellaire, Ohio. The Hanover company, with a total capitalization of $500,000, has one of the largest if not the largest coal-stripping operations in the Washington County, Pa., field where 1,500 acres of coal land are owned. On the new board of directors are: J. B. McFadden and Hiram Teater, of Wheeling, W. Va.; W. J. Sprow and Bert D. Smith, of Sandusky, Ohio; Dr. A. C. Beetham and C. N. Wyrick, of Bellaire, Ohio.

KENTUCKY

Louisville—The Pittsburgh Fuel Co., of this place, recently formed to take over the Pittsburgh Coal Co. holdings from the Island Creek Coal Co., has announced plans for handling Island Creek coal by rail and river. The following are the officers of the new company: R. Baylor Hickman, of the Ewald Iron Co., president; Charles J. O'Connor, former Pittsburgh manager, at Louisville, vice president and general manager; Clifton Rodes, vice president; L. P. Ewald, vice president; G. O. Boomer, treasurer; B. A. Leonard, assistant treasurer; M. W. Ailes, secretary. The company is capitalized at $100,000. The same interests have incorporated the Pittsburgh Coal & Coke Co., which will look after river and rail transportation, mining, wholesaling, etc. The Pittsburgh Fuel Co., which has a large elevator on the Ohio River, with equipment for unloading barges to the elevator, has the best river-handling facilities in Louisville. It also has rail switches, but nothing modern in the way of equipment for unloading cars. Plans are now being considered for a large pit and conveying equipment for facilitating car unloading, which is now done by hand. A locomotive crane has also been considered but the pit plan is faster.

OHIO

Henryetta—The Star Coal Co., a new corporation with a capital stock of $30,000, has been authorized to engage in business in this field. Incorporators are: M. A. Berman and Earl Wells, of Henryetta; John Johnson, of Schulter.

Columbus—Confiscation of fuel by the railroad companies is causing considerable trouble between shippers and purchasers of coal. The railroad managements take the position that any coal shipped prior to March 1, is subject to confiscation by the railroads, in the same manner as previous to the return of the roads to their owners. As a result of this position taken by the railroads, a considerable amount of coal, especially from West Virginia, which was shipped some time ago, is being confiscated by railroads throughout Ohio.

Marianna—It is reported that the 160 coke ovens at this place are in full blast. The Union Coal & Coke Co. mines here have been in full operation for a year, with the exception of the time lost during the strike last fall. The company is planning to make these mines the best in the county, and it is stated that more than a million dollars will be spent in new equipment this year. The dwellings of the miners will be greatly improved and repaired so that the town will be the most attractive in the county as regards the permanent home of miners. Electric equipment will be installed throughout the mines of the Union company this year. The power will be secured from the West Penn Power Co.

INDIANA

Indianapolis—The Owen Coal & Oil Co. has been incorporated, with capital of $150,000 for general mining purposes, by Alexander McKnight, Fred H. Cutting and George B. Walls.

Petersburg—Material for a new stripping mine, to be opened by the Globe Coal Co., at Rogers, six miles east of this city, is arriving and the stripping of coal will probably start early in the summer. A railroad switch has been built to a point near where the work will be done.

It is said that the Pike County Coal Company, operating the Atlas mine, just north of this city, has surpassed all other miners in this vicinity in the production of coal. The mine is electrically equipped and has a capacity of 4,000 tons. Though less than two years old, the Atlas mine is averaging 2,000 tons daily, with a working force of 300 men. N. C. McClevy, general superintendent, reports the recent purchase of 7,000 acres of coal land in western Pike County. The company expects to open up two more mines at once.

Petersburg—Aldo Johnson, a coal operator of Vincennes, has leased 3,000 acres of coal land near Alford, two miles east of here; the company will bring a drilling rig to the field. Also the Indian Creek Coal Co., which owns the Blackburn mine, three miles east of this city, is leasing hundreds of acres of coal land south of Blackburn, and will increase the capacity of the Blackburn mine. Furthermore the Pike County Coal Co., is increasing its acreage.

ILLINOIS

Litchfield—The slipping of a clevis pin at the Hoosier mine here caused the cage to fall with a loaded car 300 ft. to the bottom of the shaft. The miners had begun to assemble at the foot of the shaft to be hoisted out of the mine, and if that accident had occurred a few minutes later the cage would have been loaded with men.

Marion—Negotiations are nearing a close for the sale of the two mines at Royalton in Franklin County, of the Franklin Coal & Coke Co.; this company is headed by J. C. Mitchell, who, until about 12 years ago, was a prominent Pennsylvania operator. The Peabody Coal Co., of Chicago, is reported to be the purchaser. The Franklin company mines have a big tonnage and several thousand acres of coal lands. They have been the scene of two great disasters resulting in the dealth of many miners. If this sale is made to the Peabody Coal Co., it will give this interest four mines in Franklin County; the other two are at West Frankfort.

Johnston City—There is apparently good grounds for believing that the reported sale of the Johnston City Coal Co.'s two mines here, to the Old Ben Mining Corporation, will go through. These mines are big operations and are in the 3,000 to 4,000-ton per day class. P. H. Holland, of Chicago, has brought them up to their present state of development. It is said that the big holdings in Franklin County are passing into the hands of the "Big Four," namely: Old Ben; Chicago, Wilmington & Franklin; Peabody; Bell & Zoller. The two big companies that are increasing their holdings in Williamson County are: Peabody Coal Co. and Cosgrove & Co.

Murphysboro—Arrangements have been made for further drilling on the 640 acres of the Bandy farm for the location of the proposed No. 11 mine of the Big Muddy Coal & Iron Co., of St. Louis, Mo. This deal has, it is understood, been held up by an option (which has just expired) on all of the St. Louis firm's holdings in Illinois that called for more than $2,000,000.

The expected sale of the Gus Blair mine here from the West Virginia Coal Co., of St. Louis, to the Lincoln Coal Co., of Chicago, develops the fact that the real owner will be the Copley interests, which control several public utilities in Illinois, among them the lighting and gas plants here. This will take away the retail coal supply of the city and is the cause of much agitation.

Moundsville—Work is being pushed on the new shaft for the Panama mine of the Ben Franklin Coal Co., which has an operation just south of this place, the opening being 12 x 24 ft. It is practically a double shaft as the company plans to sink one side to the 4-ft. seam and the rest of it to the 6-ft. Pittsburgh seam. The shaft has already been sunk to a depth of 20 ft. and it will require about four or five months to complete the work now in progress. The shaft is to be concreted and a wall is also to be built at the top to prevent the possibility of flooding. While the shaft is being sunk, the company also has a new tipple under construction. Upon the completion of the shaft and tipple it will be necessary to rearrange the trackage around the mines. The company is now operating just across Big Grove Creek from the point where the shaft is being sunk.

Duquoin—The Johnston City Coal Co., operating at Johnston City, southeast of here, recently completed the construction of a new rescreening plant at its No. 2 mine. The mine at the present time has a 3,000-ton capacity. With this new improvement in operation the company expects a 6,000 tonnage daily.

Drilling has been commenced between this city and Belleville, along the right-of-way of the Southern Traction Co., of East St. Louis, which was recently purchased by C. B. Fox, president of the Aluminum Ore Co., of East St. Louis. The work is being done by engineers from Pittsburg, and, after tests have been completed, it is expected that several mines will be sunk by the new owners of the road; the road will be operated as a coal carrier.

After being closed down for five months the Springside mine near Springfield, owned by the Smith-Lohr Coal Co., has resumed operations. The mine was forced to cease operations last August due to a fire which destroyed the entire top works of the plant. Much new machinery and modern equipment, including a new steel tipple, has been erected at the mine since last summer.

KANSAS

Topeka—The Kansas Industrial Relations Court—the first and only court of its kind in the United States—recently began an investigation of coal-mining conditions in the State of Kansas. The court will open its hearings in Pittsburgh, and Attorney General Richard J. Hopkins will present the evidence to the court and make prosecutions. The information sought includes: Working conditions with reference to hours of labor, and provisions for safety and proper sanitary conditions. Miners' incomes with relation to living costs. Plan of mine operation as to continuity of operation and production efforts to meet public demands and returns accruing to both miners and operators. Housing conditions in mining settlements, and rentals required by the companies of those living in company houses; school, church and social conditions. Complaints of miners, operators and the general public, if such complaints are made. Judge Clyde M. Reed and Judge George W. Wark are members of the court.

WASHINGTON

Seattle—Five Japanese connected with the Nitsi Bishi Coal Mining Co., of Tokyo, Japan, arrived here aboard the "Katoria Maru," on a tour of the coal mines of the United States. A. Nomi is the head of the party. The visitors after learning American methods of mining will go to England and other countries.

Pocatello—It is stated that a resolution has been passed by the Chamber of Commerce, here, endorsing the Teton basin coal-mine proposition, located on the Driggs branch of the "Short Line" railroad. The resolution passed by the chamber stated that after investigation, it was estimated that there were 13,000,000 tons of available coal in the Teton properties, and further that indications were that when the mines started operation the coal could be put on the local market at "25c. a ton lower than Utah Coal." The coal was also stated to be high grade. The property is located in Bannock County in the extreme southeastern part of the state. Mr. Simpson, who represented the coal company at the Chamber of Commerce, is vice president of the Lincoln Trust Co., of Spokane.

ALASKA

Eska—S. S. Smith, chief mine inspector of Alaska, reports that at Eska mine No. 11, new 3,600-lb., 3-ft. gage mine cars have been constructed and the mine trucks have been changed from 2- to 3-ft. gage. At the Chickaloon mine, the installation of a small electric-light plant has been completed and 161 short tons of coal were mined.

CANADA

Sydney, N. S.—Alex Dick, sales agent of the Dominion Coal Co., states that it is impossible to forecast coal-trade conditions, as the company hesitates to contract for future deliveries until labor and wage conditions become more settled. Business that the company might obtain is being diverted to American ports, where cheaper costs of mining prevail, and coal is being produced under more favorable natural conditions. The total output for February at the Dominion Coal Co. collieries was 248,338 tons, which is several thousand tons less than the previous month's production. A number of mines were idle at different times in the month. The management has decided to put into effect the "safety-first" scheme and all the shot firing in the mines will be done at night.

Personals

Newall G. Alford has been chief engineer of the St. Bernard Mining Co., at Earlington, Ky., since Sept. 1, 1919.

O. Byrd Newton has been elected secretary and treasurer of the Old Dominion Coal, Iron & Coke Corporation, Roanoke, Va., in the place of C. W. Owen, resigned to engage in other business.

E. J. Wallace resigned as sales manager for the Stephan Coal Co., on March 1, 1920, to engage in the wholesale distribution of coal and coke under his own name, with headquarters in the Pierce Bldg., St. Louis, Mo.

Fred Bateman has been promoted from the position of mine foreman of the Walston No. 3 mine of the Rochester & Pittsburgh Coal & Iron Co. to that of superintendent of the McIntyre mine of the same company.

F. M. Sackett, president of the Pioneer Coal Co., Louisville, Ky., and connected with the Speed interests (which operate the Byrne & Speed Coal Corporation) and several mines in the state, on March 15 sailed for London and Paris, on a combined business and pleasure trip.

William H. Howarth has resigned his position as chief engineer of construction with the George M. Jones interests in Ohio, and has joined the engineering department of the Hillman Coal & Coke Co., of Pittsburgh, Pa., effective March 1. His headquarters is at Brownsville, Pa.

Edmund H. Dryer, referee in bankruptcy for the Northern district of Alabama, has been appointed umpire for the Fuel Administration and his appointment confirmed by Attorney General Palmer. Mr. Dryer succeeds H. C. Selheimer, who resigned on account of ill health and recently died in California.

E. H. Dulaney has been appointed coal and coke traffic agent of the Louisville & Nashville R.R., at Louisville, succeeding **C. D. Boyd**, who left some months ago to take up traffic work for the Hazard, Harlan and Southern Appalachian associations. Mr. Dulaney has been assistant to the third vice president, and connected with the traffic department of the Louisville & Nashville for some years.

Moroni Heiner, vice president and general manager of the United States Fuel Co., of Salt Lake City, was in San Francisco recently. He was the guest of James B. Smith, president of the King Coal Co. The United States corporation furnishes the King interests with coal for bunkering steamships plying to all parts of the world from the Pacific port.

J. W. Powell, who has served in the capacity of superintendent of No.'s 204 and 205 mines of the Consolidated Coal Co. at Jenkins, Ky., for about 2½ years, has been promoted to the position of general superintendent of Consolidation Coal Co. mines at Jenkins, Ky. Mr. Powell had an extensive experience as superintendent and mine manager for years in the Northwest before he became connected with the Consolidation company.

A. H. Sherrick, engineer in charge of the Brownsville Engineering Co., has sold his interest in the company to Walter Bowser of South Brownsville, Pa. Mr. Bowser has been connected with the Tower Hill Coke Co. at Republic, Pa., as its engineer for the past six years and prior to that he was employed by the Monongahela R.R. in the engineering department. The Brownsville Engineering Co. was organized on Jan. 1, 1920, when the company purchased the engineering business of L. G. Moslener.

James Pollack has resigned his position with the Fall Brook Coal Co., at Antrim, Tioga County, Pa., to take effect April 1. He took charge of one of the mines of the Fall Brook company Jan. 1, 1866, at Fall Brook, Pa., and has been in active charge of some of their operations ever since. In 1882 he assumed charge of the mining operations of this company at Antrim, where he developed and equipped two large mines. Mr. Pollack was a pioneer in the introduction of compressed-air mining machinery and designed and installed, what is said to be, one of the most elaborate and successful endless wire-rope haulage systems ever introduced in the state.

Obituary

George Washington Clackner, secretary of Dexter & Carpenter, Inc., coal operators of 12 Broadway, New York City, died on March 7, in the Broad Street Hospital, New York City, of peritonitis following an operation for appendicitis. He was 57 years old and lived at 350 Clermont Ave., Brooklyn. Mr. Clackner is survived by two sons and two daughters.

William W. Watkins, a prominent anthracite operator for many years, died at the home of his daughter, Mrs. Charles Hauenstein, Carbondale, Pa., at the age of 82 years.

John A. Mitchell, 76 years old and a pioneer coal prospector, died at a hospital in McAlester, Okla., recently. To Mr. Mitchell's explorations may be credited, it is said, the location of practically all the large coal-bearing seams in the McAlester territory. He was also an extensive coal operator.

Judge H. C. Selheimer died recently at San Diego, Cal., where he went to recuperate from an attack of influenza. Until a short time ago he acted in the capacity of umpire for the Fuel Administration, to adjudicate differences between operators and mine workers, resigning on account of ill health. Mr. Selheimer was 61 years of age and had been a resident of Birmingham, Ala., for the 35 years preceeding his death His remains were sent to Lewistown, Pa., his former home, for interment.

David E. Jones, one of the best known mine-tunnel and shaft men in western Pennsylvania, died recently at his home at Duquesne Heights, Pittsburgh. He was born in Wales and came to this country when a young man, settling in Uniontown. Since that time he has been employed as superintendent of construction of mine tunnels and shafts in Montana, Idaho, Alaska and Pennsylvania and is said to have had charge of the sinking of more coal shafts in western Pennsylvania than probably any other man. Mr. Jones had resided in Pittsburgh for 15 years and was employed by the Dravo Construction Co.

Walter Scott Harkins, one of the best known residents of eastern Kentucky, died recently at his home in Prestonsburg, Floyd County, after an illness of but a few hours of acute pneumonia. He was known throughout Kentucky and southeastern West Virginia as a lawyer of ability and as a man of kindly humor and strength of character. He was an extensive land owner and was heavily interested in coal, timber and oil operations. He was 62 years of age. Besides the widow, four children survive. They are: Joseph, Walter S., Jr., and Josephine, of Petersburg, and Mrs. Grover Howard, of Maysville. A number of kinspeople are residents of Huntington.

Thomas Jeremiah, superintendent of the Willis Coal & Mining Co., Willisville, Ill., died suddenly of heart trouble March 4, aged 51 years. His wife and six children survive him. Thomas Jeremiah had a wide acquaintance among Illinois miners because of his varied activities. He began his official career as a member of the Illinois District Executive Board, later serving as national organizer in the southern states under John Mitchell. In 1901, he became associated with the Willis Coal & Mining Co., and at the time of his death was a member of the board of the Fifth and Ninth District Coal Operators' Association. In 1911, he was appointed a member of the Mining Investigation Commission of Illinois, and served as chairman of that commission four successive terms. He was also a member of the Illinois Mine Rescue Station Commission until its work was taken over by the State Department of Mines and Minerals.

Coming Meetings

National Coal Association will hold its annual meeting May 25, 26 and 27 at the Traymore Hotel, Atlantic City, N. J. Secretary, W. B. Reed, Commercial Bank Building, Washington, D. C.

The American Association of Engineers will hold its annual convention at the Planters Hotel, St. Louis, Mo., May 10 and 11. C. E. Drayer, secretary, Chicago, Ill.

National Foreign Trade Convention to be held in San Francisco, Cal., May 12, 13, 14 and 15.

Chicago Coal Merchants will hold its annual meeting April 13, at Chicago, Ill. Secretary, A. H. Kendall, Chicago, Ill.

American Chemical Society will hold its annual meeting at St. Louis, Mo., April 13, 14, 15 and 16. Secretary, Dr. Charles L. Parsons, 1709 G. St., N. W., Washington, D. C.

New England Coal Dealers' Association will hold its annual meeting March 24 and 25, at Springfield, Mass. President, W. A. Clark, 141 Milk St., Boston, Mass.

National Retail Coal Merchants' Association will hold its annual meeting June 10, 11 and 12 at Detroit, Mich. Secretary-manager, Ellery Gordon, Philadelphia, Pa.

Indiana Retail Coal Merchants' Association will hold its annual meeting April 27, 28 and 29 at the Severin Hotel, Indianapolis, Ind. Secretary, R. R. Yeagley, Indianapolis, Ind.

American Society of Mechanical Engineers will hold its spring meeting May 24, 25, 26 and 27, at St. Louis, Mo. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

National Federation of Construction Industries will hold its first annual meeting at the Hotel Sherman, Chicago, Ill., March 24 and 25. Executive secretary, John C. Frazee, Drexel Building, Philadelphia, Pa.

Chamber of Commerce of the United States will make its eighth annual meeting, to be held at Atlantic City, N. J., April 27, 28 and 29, an Increased Production Convention.

Trade Catalogs

Graphic Instruments in the Field of Transportation. The Esterline Co., Indianapolis, Ind. Folder, Pp. 4; 8½ x 11 in.; illustrated. Indicates what graphic instruments are doing on various transportation lines.

High Efficiency Centrifugal Pumps. De Laval Steam Turbine Co., Trenton, N. J. Pamphlet. Pp. 8; 8½ x 11 in.; illustrated. Description of official tests made by two municipalities upon a 20-in. and 12-in. centrifugal pump, respectively. Of interest to all who are concerned with the handling of water by electric power.

Keystone Rivetless Chain. The Wilmot Engineering Co., Hazleton, Pa., manufacturers. **Frank W. Watts Co.**, sales engineers, Pennsylvania Bldg., Philadelphia, Pa. **Catalogue 19. Pp. 52**; 6 x 9 in.; illustrated. Details of chain for conveyors and elevators; complete description and adaptability noted for various installations.

Sullivan Plug Drills and Air Compressors; bulletin 70-N, pp. 4. **WA-6 Air Compressor**; bulletin 75-P. **Valveless Stoping Drills**; bulletin 70-M, **DX-61, Water Hammer Drill**; bulletin 70-I. **Portable Air Compressors, Gasoline Engine Driven,** Class WK-31; bulletin 75-T. **Angle-Compound Power Driven Air Compressors**; bulletin 75-S. **Tandem Compound Corliss Air Compressors.** Class WC; bulletin 75-U. **Utility Forge Hammer**; bulletin 72-D. **Power-Driven Air Compressors**; bulletin 75-R. These bulletins are published by the Sullivan Machinery Co., Chicago, Ill. Each bulletin in 6 x 9 in.; illustrated. Description of machines noted.

Industrial News

Clearfield, Pa. — The Clearfield Bituminous Coal Corporation announces the removal, on March 1, 1920, of its general offices from Clearfield to Indiana, Pa. This change also includes the office of the general manager, general superintendent and purchasing agent.

Chicago, Ill.—The January, 1920, issue of *Electrical Mining* published by the Goodman Manufacturing Co., of this place, contains articles descriptive of the Goodman scraper loader and its operation in coal mines. Excellent illustrations show the device at work in various mines.

Philadelphia, Pa.—The Cortright Coal Co., of this place, announces that it has been appointed exclusive sales agent for the Cambria Fuel Co., which mines a low-volatile coal from the Scalp Level district of Pennsylvania. The offices of the Cortright company are in the Pennsylvania Building, Philadelphia.

Williamson, W. Va.—Early development of the large holdings of the United States Coal & Coke Co., on Ben Creek in the Williamson field, is presaged through the presence of several engineering parties who are making plans and surveys with a view to the beginning of early development.

Eagle Pass, Tex.—The International Coal Mines Co.'s property near here has been sold to Dr. R. R. James and associates of Cotton Plant, Ark., by J. D. Quinn and others. The property brought $100,000. It is announced that the purchasers plan to continue operation of the mines, and also to make extensive improvements and enlargements.

Charleston, W. Va.—Among other improvements contemplated by the West Branch Mining Co., at its plant at Dry Branch in the Kanawha field, is the construction of a large number of dwellings for the accommodation of miners, the company having in view an increase in its output. Operations are under the direction of William Farrel, superintendent.

Logan, W. Va.—Logan lands are to be developed by the newly formed McCall Coal Co. in which Logan people are largely interested, this corporation being formed with a capital stock of $200,000. Headquarters of the company will be maintained at Logan, W. Va. Those active in the organization of the new company were: W. R. Lilly, J. R. Slack, H. A. McAllister and W. C. McCall, all of Logan, W. Va.

Betsy Lane, Ky—The Pike-Floyd Coal Co., recognized as a part of the Pittsburgh Coal interests, is making splendid progress on its large new operation near here in Floyd County. It is planned to make this operation the largest individual producer in the district and the most modern machinery is being installed; the early construction work is being done by the Dravo Construction Co., of Pittsburgh, Pa.

Thurmond, W. Va. — The Cadle Ridge Coal Co., which recently increased its capital to $100,000, has perfected arrangements for the development of about 900 acres of coal properties. Machinery will be installed for all features of operation, and electric equipment will be utilized wherever possible. It is proposed to have a daily capacity of about 800 tons. J. M. McVey is president and manager; Harold E. Willson, consulting engineer.

Welch, W. Va.—Preliminary organization of the Little War Creek Coal Co., has been completed with a capitalization of $500,000. This company was organized by J. C. Sullivan, of Tralee, W. Va., in order to develop certain coal territory recently purchased by him near this place. The incorporators of the new company were: Duke W. Hill, Charles G. Davis, S. H. Harrison, Vena Stapleton and Arthur B. Hodges, all of Charleston, W. Va.

Bastrop, Tex.—The Consumers' Lignite Fuel Co., recently incorporated with a capital of $50,000, has perfected its organization and is arranging for the development of a total of about 640 acres of property. Complete mining machinery and equipment for all features of operation will be installed. L. S. Johnson is president, H. M. Handshy, vice president and manager; J. T. Crysup, secretary and treasurer. H. M. Handshy will also act in the capacity of construction engineer.

Philippi, W. Va.—A tract of coal land in the Philippi district of Barbour County is to be developed in the near future by the Tygart River Coal Co. This corporation has been organized with a capitalization of $150,000, Pennsylvania capitalists being principally interested as follows: A. L. Gaphart, of Knoxville, Pa.; David S. Smith, of Hays, Pa.; Carl Breitweiser, of Pittsburgh, Pa.; Geo. F. Martin and R. D. Carkhuff of Westford, Pa. Headquarters of the company will be in this city.

Ashland, Ky.—The Marrowbone Mining Co. suffered a complete loss by fire at its power plant recently. It is hardly expected that this mine will be in shape to resume operation within three months. Plans have been quickly consumated for the replacement of adequate electrical machinery to take care of the present requirements of the company as well as the new operation of the company on which development work was recently started.

Morgantown, W. Va.—The offices of the Penn-Mary Coal Co. will be moved, on April 1, from Morgantown to Reedsville, Preston County, W. Va., it is announced by Samuel Steinbach, chief engineer of the company's West Virginia division. The company recently acquired the coal and other properties of the Elkins Coal & Coke Co., in Monongalia and Preston counties, and the removal of the offices is for the purpose of placing the management in closer touch with the actual operations.

Pittsburgh, Pa.—The Koppers Co. has nearly completed the coke-oven plant which it has under construction for the Jones & Laughlin Co., and it is expected that this works will begin operations within two months. This plant is constructed with triangular flues according to the plan which had been developed as a result of the use of oil at St. Paul, Minn., where a small battery of these ovens has been tried out for two or three years. This plant which is nearing completion is the first one to use this type of oven extensively.

Lewisburg, W. Va. — The Greenbrier Smokeless Coal Co., recently incorporated with a capital of $100,000, has perfected its organization, and is arranging plans for the development of about 900 acres of coal properties in the vicinity of McClungs, Greenbrier County, W. Va. Complete machinery and equipment for all features of operation will be installed. R. M. Bell is president, and W. E. Nelson, treasurer.

Cassville, W. Va.—The Lee R. Shriver Coal Co. has been organized for the development of coal properties in the Cassville, district. Plans are being arranged for the installation of machinery and equipment for the development of about 225 acres of coal land, the plant to have an ultimate capacity of about 1,000 tons daily. Machinery and equipment will be installed. Nat C. Burdette is president; Lee R. Shriver, vice president; Frank Shriver, treasurer; and Robert L. Brock, secretary, all of Morgantown, W. Va.

Mullins, W. Va.—The Mullins Light & Power Co., of this place, has recently changed hands and will be known hereafter as the Union Power Co., Inc., with the following officers: C. H. Elsom, president; F. B. Lamb, vice president; H. P. Musser, secretary; M. W. Gilliam, treasurer; S. T. Preston, general manager. This company supplies the town of Mullins and neighboring coal companies with light and power. Extensive improvements are contemplated. The main offices of the company are located in Charleston, W. Va.

Straitsville, Ohio—The Straitsville Coal Co., of Columbus, has been chartered with a capital of $5,000, which will be increased later to develop large coal areas on the Hazelton estate on the Baltimore & Ohio RR. between Straitsville and Shawnee. The incorporators are: F. H. Spencer, C. H. Gibbs, E. E. Hazelton, A. T. Seymour and E. L. Pease. F. C. Spencer will be in active charge of the development work, and offices have been established in the Columbus Savings & Trust Bldg, Columbus. A good deal of storage slack is on the property and it is planned to load this for commercial purposes.

Scranton, Pa.—A large contract has come from the state of Ohio for pumps for industrial purposes to the Scranton Pump Co. of this place. The Goodrich Rubber Co. has contracted for the machines. There are three of them, each 42 ft. long, 14 ft. wide and 10 ft. high and weighing 90 tons. The price to be paid for the three pumps is something less than $100,000. Two of the mammoth pumps are to be ready for shipment within 3½ months from date of contract and the third must be ready a month later. The pumps are the largest that the local concern has ever attempted to build.

Williamson, W. Va. — Colonel T. E. Houston, one of the largest operators in the Pocahontas field, has materially increased his coal holdings in the Williamson field having just completed a deal for the extensive properties of the Red Jacket Consolidated Coal & Coke Co., the transaction involving the sum of about $2,000,000. The deal was consummated about the first of the month. All the Houston holdings in Mingo County, it seems to be pretty well understood, will be brought under the supervision of W. A. Wilson who for several years has been the superintendent of the Thacker Coal & Coke Co., a large producing company in the Mingo field. With the acquisition of the Red Jacket company, Mr. Houston becomes one of the largest producers in the Mingo section. Not long ago Mr. Houston became interested in a large tract of coal on Wolf Creek, Marlin County, Ky.

Chicago, Ill.—The Ben Franklin Coal Co., of West Virginia, has contracted with Jacobsen & Schraeder, Inc., of Chicago, for a complete new tipple to be built at its Moundsville mine. This tipple will include a Jacobson balanced horizontal screen and picking table, crushing and loading facilities for three tracks, belt conveyor and concrete storage bins.

The Tasa Coal Co., of Pittsburgh, Pa., has also contracted with this Chicago engineering and constructing firm for the design and installation of a modern tipple for its stripping operation. This tipple will include retarding conveyor, Jacobsen equipment and facilities for loading on three tracks.

Heyl & Patterson, Inc., of Pittsburgh, Pa., has awarded a contract to Jacobsen & Schraeder, Inc., engineers, Chicago, for the design and Jacobsen balanced horizontal screening equipment for the screening plant which they are constructing for the North Western Fuel Co., of St. Paul.

MARKET DEPARTMENT

Weekly Review

Higher Prices Likely to Be Soon Effective—Car Supply Is Slightly Improved—Export Shippers Protest—Demand, Though Strong, Has Eased Off in Some Places and Grown Stronger in Others.

SOME relief from the tightness of the coal trade has been experienced during the past week. Although car supply is still far from normal in some sections of the country, conditions have improved in a measure. Reports of confiscations of cars by the railroads are few and far between. Now that more cars are available, the demand for domestic coal, because of higher temperatures, has eased off somewhat.

The final decision of the Bituminous Coal Commission is awaited with interest if not suspense. The increase favored by Mr. White, states Chairman Robinson of the Commission, will cost the country 100 million dollars per year, and any reduction in the working time, if granted, would result in still higher costs to the public. With statements such as the above before them, consumers are beginning to realize that the discontinuance of Government control will result in an increase in prices.

There is a certainty that the price of anthracite will also increase. While it is not likely that the 60 per cent wage advance now being demanded will be conceded, it is likely that an increase similar to that likely to be received by the bituminous mine workers will fall to the anthracite men. However, the final decision of the committee now in session in New York City is not expected for some time.

Continuation of Government prices has quite seriously disturbed the routine of the bituminous-coal industry. At this time of the year negotiations for the next winter's supply are usually made, but with Government prices still in effect and the award of the President's commission not definitely settled, neither the operator nor jobber knows where he stands.

Stocks of anthracite in the Midwest are low and domestic orders in Milwaukee have been limited to one ton. Due to the scarcity of cars, no Eastern coal is being received, and the consumers in that district are drawing upon Illinois and Indiana to meet their requirements. The prospects that there will be a strike of the bituminous miners, not at all an unlikely eventuality, has caused an increased demand for coal in the Midwest.

The fact that the Shipping Board has granted the right to ship coal overseas from Newport News and Charleston, and has refused export coal rights to Baltimore, Philadelphia and New York causes much complaint from shippers engaged in that trade. This, they claim, is doing permanent injury to the ports refused this right, and the Baltimore Import and Export Board of Trade has filed a complaint with the Government along that line.

Anthracite steam trade has had a healthy tone in the past week, though buckwheat is rather difficult to procure from the large companies. Once again the individual companies are in a position to demand premiums for this particular size.

ANTHRACITE SHIPMENTS FOR FEBRUARY

Shipments of anthracite for February, 1920, as reported to the Anthracite Bureau of Information at Philadelphia were 4,913,664 tons, as compared with 5,713,319 tons in the preceding month, and with 3,871,932 tons shipped during February last year, which has the distinction of being the smallest monthly shipment of anthracite for the past eighteen years, with the exception of shipments made during the strike period.

Even with the shorter working time, February of this year would have recorded considerably more tonnage had it not been for the exceptionally severe weather conditions which prevailed during the entire month, it being impossible at times for some of the collieries to operate, which, of course, cut down production as well as shipments.

Total shipments for the coal year or eleven months ending Feb. 29, 1920, have amounted to 63,737,213 tons as compared with 67,728,849 tons shipped during the previous coal year ending Feb. 28, 1919, a decrease of approximately 4,000,000 tons, which is made up entirely of steam sizes. Shipments in tons by carriers were as follows:

	February, 1920	February, 1919	Coal Year, 1919–1920	Coal Year, 1918–1919
Pennsylvania & Reading Railway	1,038,303	725,809	12,934,447	13,339,828
Lehigh Valley Railroad	928,208	643,551	11,628,611	12,586,368
Central Railroad of New Jersey	408,052	334,697	5,720,217	5,928,059
Delaware, Lackawanna & Western Railroad	827,172	597,604	9,871,581	10,233,528
Delaware & Hudson Co.	455,003	629,929	7,137,786	8,162,731
Pennsylvania Railroad	394,366	273,031	4,545,955	4,755,812
Erie Railroad	491,608	371,033	6,929,201	7,588,336
New York, Ontario & Western Railway	135,957	108,029	1,840,232	1,749,351
Louisville & Northeastern Railroad	234,995	188,249	3,129,183	3,384,836
Total	4,913,664	3,871,932	63,737,213	67,728,849

WEEKLY PRODUCTION

The weekly report on the production of bituminous coal, anthracite and beehive coke, compiled by the Geological Survey, for the week ended March 6, 1920, states that the total output of bituminous coal (including lignite and coal coked) is estimated at 10,352,000 tons, an increase of 207,000 tons, or 2 per cent.

A 5 per cent decrease in the production of beehive coke occurred. The total output for the United States is estimated on the basis of railroad shipments, at 412,000 net tons, a decline of 23,000 tons when compared with the previous week. All districts except West Virginia reported a decrease. Production in the Connellsville region, as reported by the *Connellsville Courier*, was 9,749 tons less than during the week of Feb. 28. As before, the factor limiting production was shortage of cars. No definite report from the anthracite field has as yet been reported.

Atlantic Seaboard

BOSTON

Better movement, especially all-rail. Brisk contract demand. Fewer confiscations. Light supply at Tidewater piers. Hampton Roads despatch normal. Anthracite embargoes raised, except via Maybrook. Trade closely following developments.

Bituminous—The milder weather has very much changed the immediate outlook. The railroads have made good progress the past week in clearing up congestion, both on their own sidings and at the gateways, although Maybrook, N. Y. is still the source of much anxiety. Water power has improved also in many parts of this territory and the general thawing-out process is beginning to show results.

There are still large numbers of cars at different points awaiting motive power, and it is not at all unusual to find cars that were started in January still hundreds of miles short of destination. Coal moving inland from the various rehandling plants is also reaching destinations in better time and the trade shows a distinctly more hopeful tone than a fortnight ago.

There continues to be a lively interest in season contracts, especially on the part of those who require the better grades from Pennsylvania. As was the case last year the all-rail route has very much the preference and it will be interesting to see how the Pennsylvania shippers stand up under the pressure. Car supply has been much better the past ten days, it having been reported that the New York Central showed very nearly 100 per cent.

So keen is the desire for offshore business, whether cargo or bunker, with its probabilities of a continuing permissive premium while home buyers are not allowed to pay a competitive price, that there have been several cases lately where very desirable offers have been turned down in favor of foreign orders. On the latter there is little discussion of price; the buyer who pays a very high rate of ocean freight is not disposed to quibble over differences of 50c.@ $1. In consequence it is growing more and more difficult for the New England steamraiser to be assured of supply from operations that he prefers.

The rumered decision of the Wage Commission has caused very little comment thus far. On every understanding that at all approaches the status of a contract a wage increase of some sort has been discounted, and nobody here seems to care very much how much the operators are to pay. Coals of recognized efficiency are today certainly in good request, and so long as the present Government price holds there is apparently little chance of getting April and May coal without making contracts for the twelvemonth period.

At the New York and Philadelphia piers there is only a scant supply. Much of the coal available is held for foreign shipping; a fair proportion is being received on contract, but the volume for the spot market is extremely light. Invoices with the wage increase added look puny beside some of the sales that are reported to the various transatlantic shipping lines. Even the authorized Government figure has been exceeded very frequently and it remains to be seen whether there will be any corrective functioning on the part of those now administering the fuel clauses of the Lever Act.

Confiscations Continue

Confiscations in transit have not yet ceased on the railroads, but the tonnage seized has very much decreased. There have been many cases where coal has been seized three times, the last time by the road on which it was traveling, for that road's current supply, even though the Regional Coal Committee has already commandeered it, first for the delivering railroad and then for some industrial or public service plant in distress. The various shippers feel they are earning the money through the extra burden thrown upon accounting departments.

At the Virginia terminals steamers are being loaded with customary despatch. Seldom, lately, have coastwise coal bottoms been obliged to wait for more than a day or two. Much less is being heard of "emergency" coal, and there is now an impression in the trade that much of it is quietly being released without being dumped for consignees in this section. All the publicity and heart-rending appeals that were so widely printed seem now to have amounted to very little.

Anthracite—The Boston & Albany and the Boston & Maine embargoes against hard coal had been lifted by March 8 and already much-needed shipments have been started for distribution via these roads. The New Haven is open via Harlem River but the large volume that usually pours through Maybrook is still shut off. Receipts all-rail will show a very heavy increase in March, as compared with April, the demand being very much accelerated by the practical certainty that prices will be advanced again when the present conferences are concluded.

By water the movement has as yet increased very little. Marine equipment suffered heavily from the extreme weather in February and recovery is only gradual. Dumping is of course much faster, and if only the tows would move a lot of coal could be got forward to New England this month. There are several communities, especially on the Maine coast, where there is practically no coal on hand. Local stocks of wood have also been much depleted.

Now that the embargoes have been lifted for most routes there is a slightly better demand for steam sizes. This trade is being actively convassed but the resulting tonnage is light.

Retail dealers are following very closely the press reports of the scale committee conferences in New York. The impression is that the mine-workers have fewer grievances than those who are in bituminous and that a just agreement can be more readily reached.

NEW YORK

Moderated weather conditions permit freer coal movement. Domestic sizes in continued demand. Consumption remains heavy. Consumers place orders for next winter's fuel and operators report heavy bookings. Free bituminous coals easily absorbed by bunkers.

Anthracite—Milder weather conditions have permitted a freer movement of coal, and while the dealers are anxious to receive all the supplies available they are not running short. Demand continues active and receipts are again nearing normal. The cold weather and delays in deliveries have resulted in heavy consumption and consumers are making strenuous efforts to refill their bins.

The approach of April 1 does not appear to cause any let-up in demand upon the retail dealers, householders apparently feeling there will be no reduction in prices, and having read in the daily newspapers that they may expect an increase of at least $1 a ton, many have already entered their orders for next winter's supply.

Demand is for the larger sizes, egg and stove, and these sizes are as scarce as they have been for several weeks. Chestnut is also in demand. The scarcity was increased because of the lack of production due to the severe storms of the early part of March, when many of the mines were forced to suspend operations.

The trade is closely watching the daily conferences now going on in this city looking toward a new wage agreement with the mine workers. It is conceded that whatever increase in pay will be granted the workers it will be eventually paid by the consumer

Many buyers are going to the coal fields in an effort to close contracts, and in some instances have been successful, but railroad shipments have been slow. Moderate temperatures however are improving these conditions and operations at the piers are speeding up.

Independent operators do not have any difficulty to obtain the 75c. differential for their product, especially for the domestic size, and some report sufficient orders booked to carry them well into next month's output.

Buckwheat and rice are in good demand and easily absorbed, while barley is easier in supply and not so easily taken up. The continued lack of bituminous has not yet resulted in a let-up in demand for these coals.

Current quotations for company coal per gross tons at mine and f.o.b. tidewater, at the lower ports are as follows:

	Mine	Tidewater
Broken	$5.95	$7.80
Egg	6.35	8.20
Stove	6.60	8.45
Chestnut	6.70	8.55
Pea	$5.30	$7.05
Buckwheat	3.40	5.15
Rice	2.75	4.50
Barley	2.25	4.00
Boiler	2.50	4.25

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

Bituminous—There has been no relief in the bituminous situation. The trade sees no relief in sight. Considerable confusion exists because of continued Government control, and operators and wholesale dealers believing they could handle their own affairs better.

The reports of the Bituminous Wage Commission granting the mine workers 25 per cent increase in pay, the increase to absorb the 14 per cent increase granted last November, has not helped the situation any and many of the smaller operators are wondering what the outcome will be.

Dealers have been notified that regulations have been issued requiring permits for the bunkering of vessels to foreign ports and for the exportation of cargo coal by the Tidewater Coal Exchange, and that the permits must be filed with the Collector of Customs before clearance to vessels shall be granted. This order is to remain in force until midnight of April 30.

The demand for spot coal exceeds the supply. Receipts are coming to the dock better, but with few exceptions, are ready under contracts. Buyers of free coal meet with considerable difficulty in obtaining cargo lots. Contract coals are sold more freely and there is considerable bunkering because of the vast number of vessels now entering this harbor.

Numerous inquiries are being received regarding contracts for next year's supply, but in many instances are turned down, as many of the smaller operators find they are operating their mines at loss. Others are signing up, at the Government prices until Federal control ends, after which another price will be stipulated in the contract.

These prices range from 25c. to $1 per ton more than the present. Maximum Government price of $2.95, the higher figure being for the high grades. Production does not improve rapidly. Cars continue to be short, some of the mines receiving not more than 40 per cent of their normal supply.

Loaded boats are in good demand. There are large numbers of empty boats lying off the loading docks, under contract and waiting for cargoes. Some of these bottoms have been there 35 days.

Government prices prevail on all coal not shipped on contract, which are as follows:

	Mine-Run	Prepared	Slack
Central Pennsylvania	$2.95	$2.95	$2.95
Western Pennsylvania	2.35	2.60	2.35
Fairmont (gas)	2.50	2.75	2.25
Georges Creek, Upper Cumberland and Piedmont Fields	2.75	3.00	2.50

PHILADELPHIA

Anthracite in strong position. Demand continues unabated. Despite warmer weather demand for current needs strong. Pea gains in strength. Stove and nut reach city in diminished volume. Companies care for New England. Strike talk and price increase urge consumer to order.

Anthracite—Even though the weather is the mildest since last November, the demand for anthracite continues unabated. The point has now been reached where the stocks put in by consumers during the summer have reached the vanishing point and the call upon the dealers is very strong. The dealers are simply choked up with orders and with very little prospect of being able to clear their books before the first of April.

Demand is, of course, all centered upon stove and nut, with egg just the least inclined to lag. However, no dealer is turning down egg, as even now they are receiving orders to store this coal in consumers' cellars for the next burning season. The public generally, at least those accustomed to use foresight, are convinced that coal will not be cheaper than it is during the present month and the retailers are being urged right along to stock up this month, but without question a large percentage of the trade will be disappointed, as the need of coal for current consumption is so strong that very little storing can be done this month.

Just at this time most dealers are shorter of the prepared sizes than they have been at almost any time all winter. Many of them have their bins entirely empty and with no shipments on the road. The shortage of tonnage is attributed to several causes, one of which has been the storms and floods in the region, especially the latter, as the collieries are having much trouble with water in the workings following the thaw of the last week. Then, again, with the lifting of the embargoes on the lines into New England, the companies have felt impelled to make extra heavy shipments there on account of the very urgent need.

Retailers in calling at the shipping offices have been very frankly told that they received much coal during the past few weeks that would have ordinarily have gone East and they must expect now to try and put up with the tonnage they are getting. As a matter of fact, it seems to be a custom of years' standing to ease off in this market at this time of the year and most dealers while needing coal, are not exactly disappointed.

Bituminous—The operators generally report some improvement in the car supply, but none of them are getting sufficient to bring their mines anywhere near up to capacity. One beneficial result of the situation is believed to have resulted in less confiscation of coal by the railroad companies, and many consignees who have been notified that coal would not reach them have been greatly surprised by receiving coal they did not expect. Even with this improvement it can only be said that the local situation is far from satisfactory.

There is hardly a plant that is not working on a reduced schedule on account of coal shortage, and the few that have not been affected have cut so heavily into their surplus that they are making the strongest efforts to replenish it. If anything, less coal has come into this market than for the past two weeks, as with the opening up of the Northern railroads much of the production has been rushed in that direction. In addition the bunker trade, at a better price, is also being take care of.

With the report of the coal commission being made to the President the consumers are waking up to the fact that they are in for still higher prices. Many of them after having become accustomed to the 14 per cent increase which was added to the

contract price had a sort of feeling that the price crisis had been passed for the time being. Now with a dispute on as to a 25 per cent or 35 per cent increase, they are beginning to realize that they are likely in for a further increase.

BALTIMORE

Business men climb into protest against continuance of export ban at this port through action by Export and Import Board of Trade. Car supply on Baltimore & Ohio has averaged around 50 per cent for week.

Bituminous—Instead of relief the coal men here find that each week is apparently bringing new complications to the general fuel situation. While the wage report would indicate considerable advances in the price of coal to consumers with the 25 per cent raise to the miners, no immediate knowledge concerning the basis is expected in local circles.

The possibility of disagreements in both bituminous and anthracite fields is not adding to the general comfort of the business situation. Uncertainty also is added by the suit of prominent coal firms to test the power of the Government to further regulate the domestic coal industry. The export ban is on tight, the only movement from this port in considerable time being the clearing of one ship with 1,029 tons for Colombia on March 6.

Meanwhile business men here are stirred by the belief that the Government action in refusing export coal rights to Baltimore, Philadelphia and New York, while granting them to Newport News and Charleston, is doing permanent injury to this port through the establishment of new lines of trade, especially with South America, for the latter ports, and which the Northern ports have held in the past but may never be able to regain.

The Import and Export Board of Trade has filed a formal complaint along that line with the Government. Car supply in the coal regions of interest here has run about 50 per cent only the past week. The Baltimore & Ohio on five successive days reported for its entire system this percentage of supply—74, 43, 42, 36 and 37. The daily loadings on the system ran ordinarily between 1,900 and 2,300 cars, although on one day the total of 3,596 cars was loaded. At Curtis Bay the daily supply for the past week ran between 268 and 351 cars the high, while the daily number of cars running to the pier varied between 138 and 419. Local industries are running close but none have been forced to curtail in any way.

Anthracite—Hard coal dealers saw a decided slackening of late ordering this week, when rather spring-like temperature arrived. The thoughts of the coal men are largely turning toward spring, and there are many underground rumors that there will be no spring cut this year, especially if the wage proposition is not worked out in satisfactory manner. There are already visions here of $14 and $15 coal unless the workers make decided concessions.

The local dealers met the past week to consider means to fight a bill introduced in the Maryland General Assembly which is designed to create new inspection rules for coal deliveries. At present the police have power to stop coal trucks and order the loads weighed, and the law provides for three per cent variation of scales.

Eastern-Inland

PITTSBURGH

Little information on Robinson commission report. Car shortage as bad as ever. No definite information in local coal circles regarding the coal wage commission's reports beyond the meager information contained in the statement given out in Washington.

Several days previous to the announcement that the commission had completed its recommendations, there was a well defined rumor in coal circles that a part of the recommendation would be that the price control be taken off coal and coke at once. This may be true, but the fact that the commission has not presented a unanimous decision, as the President urged it to do when making the appointments seems to run counter to the view.

It is regarded as impossible, in any event, that anything at all will occur until the President has had time to study the two reports. Predictions continue that there would be a very sharp rise in coal prices if the control were taken off. This could easily occur, even if all the large and conservative operators should hold their prices down.

The car shortage in general is not relieved to any extent, and in some quarters it seems to have grown worse. This means that on an average the car supply has been less since Feb. 15 than from the first of the year to that time. Return of the lines to their owners has had no appreciable effect, while as to the return of spring, that has been delayed by one belated cold snap after another, though at this writing the weather has been milder for two or three days.

Early improvement in railroad movement, however, is confidently expected. There has been an appreciable improvement in car supplies to steel mills for shipping steel, and it seems that the coal mines are to be the last to receive better service. The market remains quotable at Government limits: Slack, $2.10; mine-run, $2.35; screened, $2.60, per net ton at mine, Pittsburgh district, with a 15c. brokerage in addition in some cases.

COLUMBUS

Car supply is slightly better and the coal trade is not as strenuous as formerly. Still an insistent demand for domestic and steam grades. No actual suffering in central Ohio is reported.

Bituminous—Some relief from the tightness in the coal trade was experienced last week when the car supply in most of the Ohio fields was improved slightly. On the other hand higher temperatures reduced the need for fuel and consequently the stress is gradually passing away. There is still a strong demand from all localities for fuel, mostly domestic sizes. Steam demand is strong although some of the larger steam users have been able to secure some reserves. The future is not very encouraging however, as any great improvement in the car supply is not expected soon.

Domestic trade is strong and many dealers are clamoring for shipments. Retail stocks in many places are entirely exhausted and some inconvenience has been caused. But with milder weather the stress has been relieved to a certain extent and retailers have been able to make out in some way. Dealers have been delivering only small orders, as they reduced loads to make the available supply reach all consumers. Steadiness characterizes retail prices. Pocahontas is practically out of the market although some West Virginia grades are arriving. Pomeroy Bend and the Hocking Valley fields are supplying the larger part of the trade in Columbus and central Ohio.

Steam business is moving along fairly well, although there is still a marked scarcity in stocks. Large manufacturing concerns have used every possible means to speed up shipments. Iron and steel plants are buying rather heavily. Public service concerns are also in the market for large shipments as their reserve stocks have been depleted. Railroads are confiscating a large number of cars and this is causing some trouble among commercial purchasers.

The Lake season will probably be one of the most active in years. Lake shippers are scurrying around for tonnage and have not succeeded in picking up any large amount. Producers are loath to make contracts, especially in view of uncertainty as to the wage scale. But some few Lake contracts have been made and others are in process of negotiation. The opening of the Lake season is expected to be late.

Retail prices in Columbus are:

Hocking Lump	$6.50
Hocking Mine-run	5.75 to $6.25
Pomeroy Lump	6.50
Pomeroy Mine-run	6.00 to 6.25
West Virginia Splints, lump	7.25
West Virginia Splints, Mine-run	6.75 to 7.00
Pocahontas Lump	8.00
ocahontas Mine-run	7.50

CINCINNATI

Market conditions are still unsettled, due to a combination of causes. The car supply is still about 50 per cent of normal with production on the same level. The demand for domestic sizes was rather heavy.

Railroad control has not been in the hands of the private owners a sufficient time to be of benefit to the coal trade, although much is expected of the return of the roads to the former managements and owners.

Industrial plants are beginning to feel the shortage of fuel and the schools in particular are almost out of tonnage. From present indications stocks are so low that there will be a fairly healthy demand for coal some months to come, although it is a question whether this district will secure a fair car distribution and be able to take on equal advantages of demand with other districts which have received greater favor.

Conditions have been bad here for more than three months and all the operators have received in the way of relief have been vague promises.

Telegrams have been sent to the Coal Association at Washington by operators urging them to hasten payments on confiscated and diverted coal which has caused them indebtness.

Although coal operators and distributors are abiding by Government prices there is considerable rebelling against the restriction. The early part of the week saw the terminal congested with coal, but this was relieved before the middle of the week by the re-routing of it to other points.

Receipts by river were larger than they have been for some weeks, due to the navigable condition of the Ohio River. Confiscation was not so general as it has been, distributors, however, were deprived to some extent, thus hindering them from fulfilling orders and taking on new business. No free coal was offered and from the present outlook none will be available for some time to come. Retailers in all sections are still greatly bothered in deliveries by the unprecedented bad conditions of the streets and much is heard about the high cost involved.

It is the candid opinion of the majority of operators that no material improvement will develop in the coal situation here for many months to come. One fact is certain that the operators are not alarmed over conditions but are treating them as they come to light to the best of their advantage.

Southern

LOUISVILLE

Retailers reporting considerable difficulty in getting coal. Conditions at mines showing no improvement. River shipments coming in better. Domestic shortage in Falls Cities.

Louisville retailers have been having considerable trouble in securing coal for several days past, while demand has been heavy due to severe weather and snow as late as March 7, which has resulted in empty yards. Due to the fact that bad weather is reducing stocks carried over winter, consumers are running short and trying to place immediate delivery orders, which retailers can't handle. There is a general domestic shortage in the Falls Cities, and a heavy demand for all grades.

Industrial demand continues heavy, but mine run is in better supply comparatively, as there are many mines that are producing little other than steam. River shipments have been somewhat better. The steamer *Julius Fleischman* came into the harbor with fifteen barges of West Virginia coal a few days ago, and brought conditions around nicely with concerns which have facilities for handling river coal.

In Jeffersonville, Ind., the United Gas & Electric Co. placed its surplus supply of coal at the disposal of the retailers last week in order to fill an acute shortage of fuel at that point. Operations at the mines show very little improvement and merely go from bad to worse. Last week the Harlan field got in two days, due to car shortage. Influenza and smallpox in that field are causing some trouble.

Demand for byproduct and gas coal continues heavy, and Harlan field operators are meeting with a heavy demand for all the coal they can produce. The Hazard field also reports steady car shortage, and excellent demand for all grades, but with labor troubles facing the field. Western Kentucky mines, both on the Louisville & Nashville, and Illinois Central, are short of car supply.

The Louisville & Nashville reports that it is 10,000 cars short of requirements at the present time, and unable to meet demand of the operators.

BIRMINGHAM

Car supply from 60 to 65 per cent. Coal industry is badly handicapped. Demand for steam coal exceedingly good, while domestic inquiry is also insistent. Labor shortage and influenza contribute in a small measure in curtailing production.

The activity of the local coal market is practically dominated by the transportation problem. There is an urgent demand for coal from every quarter of the territory, which cannot be supplied, and the lack of coal to meet the requirements is attributable almost wholly to lack of cars to enable the mines to operate efficiently and have their product moved on to the consumer promptly.

The car supply for the past week has been between 65 and 70 per cent of the requisite amount of equipment. Slight relief is expected when the rail lines are working smoothly under private control. The reserve supply of fuel in the hands of consumers is negligible and deliveries are inadequate to meet the full requirements of daily consumption.

Because of the crisp weather domestic stocks in retail yards were well cleaned up and numbers of consumers felt the pinch of cold on account of inability to get fuel but temperatures have risen and the receipts of domestic fuel now, though small, are adequate for the trade. The prevalence of sickness in many sections of the coal field and the slight shortage of labor have contributed to some extent in holding down production.

Lake Region

BUFFALO

Still great scarcity of all sorts of coal. No real relief in sight. Complaint of discrimination. Car shortage the reason. No more cars in sight.

Bituminous—The situation does not improve as it was expected to after the big snow drifts were gone. The fact is the car shortage is too pronounced for any great increase of movement to take place till there are more cars. Some of the most-favored shippers are now able to report a small improvement, but they even admit that the situation is bad, and they do not look for a fuel supply of coal till the car supply is better. As to that nothing can be done but build more cars. It is a long time since any such a move has been announced.

It is stated that about 30 per cent of the existing cars are crippled and that the car shops are not taking care of them at all fast. That is the real reason for the shortage and it will continue to be till the mines can have cars that are some degree up to their capacity. Day after day the miners are idle for want of cars. Then they are able to report that they are not earning much and demand more pay. The difficulty works out badly in all directions.

Complaints of confiscations of coal by the roads continue. Since the weather has once more become mild the amount taken is much less that it was, but it is still much more than it should be. Shippers are joining together in an effort to stop it, but it is a difficult matter. At the same time this is not the worst of it. If the roads would pay for the coal promptly it would not be so bad, but to keep a shipper's money tied up, as the deferred payments do, is enough to ruin some who are not well supplied and it is an equal injury to all.

The bituminous prices are very unsteady. Some of the shippers are trying to hold to the government prices, which are still nominally in force. The quotations are $4.70 for Allegheny Valley sizes, $4.50 for Pittsburgh and No. 8 lump and three-quarter, $4.25 for all mine-run and slack and $4.70 for smokeless. The report is common that more and more of the trade is breaking away from these prices. Some operators claim that they cannot make profit on them and if they charge more the jobbers will have to do so or go out of business. As a rule the latter would prefer to abide by the regulations.

And now come reports of preferential shipments and though they do not seem to be enforced to any visible extent everybody fears that they will soon be considered necessary and be enforced as rigidly as they were before. This would be about the last straw and all because the car supply has been allowed to run down so low.

Anthracite—The supply has run down so that there is a cry of famine in the city and though shippers and distributers say it is exaggerated all agree that we are in need of much more coal than is coming this way. The Chamber of Commerce has finally taken it up and telegraphed to some of the anthracite operators for an explanation. The claim is that Canada was being supplied to the expense of Buffalo. Some shippers say it is true and it does not appear to be denied by anyone. The reason given is that the car supply is so small that an adequate movement is impossible.

It is not expected that the difficulty will last long, for the weather has now come to the rescue and not much over one-third the coal is now consumed that was during the cold season, which lasted from the latter part of November till March 10, a period never exceeded in the history of the city. But for the good supply laid in last fall the shortage would have been something frightful. It was a narrow risk to run, especially when so many railroads were blocked.

And now comes up the alarmed report that there is going to be a strike next month on the part of the miners and people who have permanent homes are teasing for coal to bridge over a suspension of production. Natural gas can be depended on to help out in mild weather, but it not only runs down badly in cold snaps, but often goes out. On March 15 it will be permissible to put the gas back into the furnaces, but last March there was a cold spell that was hard to meet with gas only.

It is time to begin loading anthracite into lake vessels and make spring rates, but nothing has been done and nothing is likely to be done for weeks yet. The shippers will not be able to secure a surplus for the opening of lake navigation as it looks now.

CLEVELAND

Shortage of fuel appears less acute because mild weather has drawn attention from it, but with steam coal users the situation still is a hand-to-mouth one. Demand for anthracite is unusually heavy for this time of year.

Bituminous—Coming of milder weather has eclipsed the coal shortage in the public eye, but the shortage remains just the same. Because of the higher temperatures demand has been decreased slightly, but not appreciably, as receipts from southern and eastern Ohio mines have not yet increased. Inasmuch as the district was able to operate practically full, though on the ragged edge, all winter, it is believed the present shortage will be outlived within a few weeks. That the worst is now past is the consensus of opinion. More efficient handling of cars and locomotives already can be detected. Domestic bituminous coal demand has tapered off to practically nothing, and all shipments have become available for industrial users. Little diverting, except occasionally for the benefit of the largest local utility, is being done.

Continuation of government maximum prices has quite seriously disturbed the routine of the industry here. At this time of the year contracting negotiations usually are on, but with government prices in effect and the Preisdent's Commission on the job neither operators nor consumers know where they are at. Operators are informally booking the needs of regular customers, with the question of price left open for future consideration. Tenders of $3 and $3.25 for No. 8 mine-run and slack are reported made to operators. Three dollars is the minimum most operators expect to be getting.

Virtually the only dark spot on the horizon here is the re-establishment of the preference list. That industrial users will suffer most heavily if cold weather recurs, is the general admission. So far, however, the Hines order has had little or no effect here.

Pocahontas and Anthracite—Slightly more Pocahontas is coming through just now, but it is only a drop in the bucket and insufficient to meet more than one-fifth of possible business. Anthracite, however, is holding up well and receipts are not far below normal for this time of the year. With rumors of an anthracite strike afloat, demand has increased and dealers are putting next winter's supply in the cellars of regular customers. Others still are limited to two tons. Prices of Pocahontas continue nominal, in the lack of sizeable trading. Anthracite quotations, while firmer, are unchanged. There are hints of advances, however.

Lake Trade—Prospects of an early opening have gone glimmering with the news that ice in upper Lake harbors is almost of a record-breaking thickness. In Duluth harbor the ice is 26 in. thick and the fields extend solidly 47 miles out in Lake Superior. Two Harbors has 21 in. of ice, Ashland 32 in., Escanaba 34 in., Port Arthur 24 in., while the St. Marys river is frozen over solidly its entire length and at Whitefish point the ice is 24 in. thick. Last season the first bulk freighter locked through the Soo canal on April 10 and reached Duluth April 11. Last season there was practically no ice, hence the belief that it may be the last of April before any lake coal can be carried this season. While considerable lake coal has been placed, the price has been left open.

Prices of coal per net ton delivered by dealers in Cleveland are:

Anthracite—Egg, $12.20@12.40; Chestnut, $12.50@12.70; Grate, $12.20@12.40; and Stove, $12.40@12.60.

Pocahontas—Shoveled lump, $9.00@9.25; and mine-run, $8.00@8.25.

Domestic bituminous—West Virginia splint, $8.30; No. 8 Pittsburgh, $6.85@7.00; Massillon lump, $7.40@7.65; Cannel lump, $11.00; and Coshocton lump, $7.35.

Steam coal—No. 6 slack, $5.75@6.00; No. 8 slack, $5.80@6.00; Youghiogheny slack, $5.25@6.10; No. 8, $6.35@6.60; No. 6 mine-run, $6.30@6.85; and No. 8 mine-run, $6.30@6.85.

DETROIT

Indifference of Federal authorities to Detroit shortage of coal arouse Board of Commerce to action.

Bituminous—Detroit Board of Commerce is arranging for a conference with similar organizations from other towns of the state to determine what can be done to bring a more liberal supply of bituminous to Detroit and Michigan. This action follows failure of an attempt to obtain relief through a direct appeal to representatives of the Federal government in Washington.

An appeal to Washington was made by E. J. DuBois, fuel commissioner of the Board of Commerce, who sought to stimulate action by presenting to the fuel authorities the information gathered in a survey of Detroit industries. This investigation disclosed that many of the large manufacturing plants are being kept in operation by the coal they are receiving from day to day and that numerous important industries are daily confronting the contingency of interrupted shipments forcing them to close down.

Mr. DuBois also informed the Federal officials that an investigation of 125 coal yards in Detroit has shown their combined stock to be only about 1,570 tons of bituminous or less than 15 tons apiece. He emphasized the fact also that the Detroit Edison Co. having daily consumption of about 4,100 tons, has reduced its reserves to something like 14,000 tons in contrast with a usual reserve of about 100,000 tons.

Government representatives gave Mr. DuBois no encouragement to expect improvement. H. B. Spencer, chairman of the Central Fuel Committee, told Mr. DuBois that while perhaps it would be possible to provide coal for household consumers and for public utilities, no assurance could be given that Detroit industrial plants would not be forced to close.

Jobbers say the railroads are continuing the confiscation of coal sent to Detroit, despite the protests of consumers and the trade. The present shortage of supply is ascribed principally to the action of the railroads in seizing and diverting shipments sent to Detroit.

Anthracite—Very little anthracite is coming into Detroit, but dealers are of the opinion that temperature conditions will moderate speedily and that household consumers will be able to provide for their requirements without hardship.

Middle West

MIDWEST REVIEW

Big consumers of coal in the Middle West are beginning to be worried because they are having great difficulty in getting contract propositions from either operators or distributors.

Operators cannot, most certainly, afford to take on big contracts on a basis of the present Government prices, nor can they afford to take on contracts over and above the Government prices. Consequently, they are selling their output almost entirely on a day-to-day basis. This proves very unsatisfactory both from the standpoint of the operator and consumer.

The car situation is improving slowly in Illinois and Indiana, although mines on the Pennsylvania Lines, in Indiana, are reporting a very much better car supply than any other mines in that territory. The railroads, it appears, are not going to follow the tactics inaugurated and carried out by the late lamented U. S. Railroad Administration. In fact, we know that several mines who worked on railroad contracts last year have been approached, within the last few weeks, by the railroads, asking that their contracts be renewed, and of course on a different basis. So far we have not heard of any large contracts that the railroads have made.

The market continues very strong on domestic sizes, and steam coals. Apparently the coal shortage in the country is very much more serious than at first supposed. That there should be a shortage of steam coal can be easily understood, both on account of the strike, and the tremendous industrial activity in the West.

The shortage of domestic coal is hard to understand, because normally at this time of the year, dealers are not buying at all, but are cleaning out of their bins what has been left of their winter coal supply.

We have been having some very mild weather, but, irrespective of this, dealers are buying coal as fast as they can place their orders, and it appears that the public is buying coal from the dealers just as fast as it arrives. It is predicted that the domestic trade will boom right straight through the summer months, because the public is showing a desire to stock coal this year, in order to avoid future uncertainties and difficulties. If this trend of early buying continues, it will be a very satisfactory thing for the whole industry.

CHICAGO

Railroads still confiscate coal. Shippers' situation is bad. Demand for domestic coals.

During the coal strike, and continuing from the end of the strike up to now, it is said that the Pennsylvania R.R. has been confiscating a large number of cars of coal. The shippers of this coal claim that they are unable to get payments from the Railroad, and have bills against that railroad dated as far back as October, 1919. They claim, in addition, that the Pennsylvania R.R. does not even answer their letters asking for payment, let alone forwarding checks for confiscated coal.

The situation is growing so bad, we understand a number of Chicago shippers and wholesalers have made up their minds to send a delegation to Pittsburgh to call on the proper authorities of the railroad, and see if something cannot be done. Market conditions in Chicago differ very little from the general conditions existing throughout the Middle West. All domestic coals are in great demand, and very hard to get. Buyers of steam coal are placing orders wherever they can, and it looks as if a strong market will continue for some time.

ST. LOUIS

Car shortage in all fields continues and coal is more scarce than at any time in years, excepting in strike periods. Much dissatisfaction among miners.

Car shortages instead of getting better apparently seem to be the reverse. Throughout the Standard and Mt. Olive fields, with the exception of one or two roads, conditions have been worse the past week than at any time in many years as far as car shortage is concerned.

Two exceptions were the Vandalia and the Baltimore & Ohio, which roads showed considerable improvement. There was a slight improvement on the Wabash, but the other roads fell down with the exception of the short line coal roads, which held to about where they had been for the past week or two.

There is much dissatisfaction among the miners throughout these districts,—first because of the short working time, and secondly because the commission appointed to look into the new wage scale have up to the present failed to make any satisfactory progress. On the Illinois Central and Mobile & Ohio two days a week seems to be about the maximum.

Railroad contracts are behind and nearly all railroads are short of fuel and are taking anything they can get. From the Mt. Olive districts the movement of coal North and West for the railroads is heavy.

The steam call exceeds the supply on everything. Domestic demand is easy, as far as the demand is concerned, but the supply is so short that deliveries are way behind, as much as three weeks on Mt. Olive coal.

The domestic demand in the country is many weeks behind, with no chance of getting caught up until April first or after, unless something unforseen develops. Steam country business is exceptionally good if it could be taken care of.

In the Carterville field of Williamson and Franklin County the car shortage is playing havoc with tonnage. The mines on two or three roads are faring fairly well, getting as much as three and four days a week, but the mines located on the Illinois Central alone or the Missouri Pacific alone are in bad shape.

For the first time in several weeks a few cars of commercial coal were booked out this week on contracts. The movement of everything is unusually slow. The weather has changed and is warm and the demand in some sections, while unusually heavy, is easing up, but the mines are many weeks behind on domestic sizes. Steam sizes are also behind and are likely to continue so.

Everything in this field indicates a heavy early buying of coal and the railroad tonnage is heavy and will likely continue so. The miners in these districts do not show as much discontentment as in others.

In the Duquoin district conditions are considerably worse, that section being served only by the Illinois Central. There is much speculation throughout the field on the part of the miners as to what the commission at Washington will recommend in the way of an increase. The miners seem to think that they must have at least thirty per cent.

The twenty-five per cent increase reported on March 11 as being recommended at Washington seems to satisfy some of them, but many are not contented with that and it will take a few days to get any information as to what the majority seem to think about it.

A condition that is confronting the railroads in the Middle West is the substituting of oil for coal if the price of coal continues to go up. Oil is as high now, they figure, as it will be and is likely to come down, but coal will go up and the problem is receiving serious consideration at the hands of the big western roads, and especially those in the southwest.

There is practically no anthracite coming into St. Louis, and no smokeless. The tonnage of Franklin County is still small. There has been no change in prices and, generally speaking, local conditions are satisfactory.

MILWAUKEE

Severe winter weather in March caused a heavy demand on the coal supply and forced dealers to measure out orders gingerly. No change in prices.

Sub-zero weather during the first week in March put the coal business of Milwaukee into an acute stage from which it was subsequently rescued by a burst of spring-like atmosphere. The market is now entirely dependent upon rail supplies. Cars are scarce and the service in general has been demoralized by cold and snow. The stocks of anthracite are so low that consumers are limited to one ton orders.

No Eastern soft coal is being received at present, Illinois and Indiana being drawn upon for steam coal. Domestic sizes of Pocahontas are as scarce as anthracite, but there seems to be an abundance of mine run. There will be no relief from the present situation until navigation opens. Prices remain unchanged on coal and coke. The suggestion of $15 anthracite on April 1 is no longer heard.

Prices in Milwaukee are:

Anthracite

Chestnut	$12.70
Stove	12.60
Egg	12.40
Pea	11.20
Buckwheat	9.75

Government prices are as follows:

Bituminous

West Virginia, splint screened	8.00
Hi-Heat	8.00
Hocking, screened	7.75
Pittsburgh, screened	7.75
Pocahontas mine-run	8.75
Pocahontas, screened	11.00
Cheerful Chunks	9.50
Smithing	8.75
Cannel	12.00

Pacific Coast

SAN FRANCISCO

Car situation improved. Recovery almost complete. Bunkering business in fine shape.

More railroad cars are available for the transportation of coal from Utah and Wyoming to San Francisco, the main receiving point on the Pacific Coast. Recovery has been just about complete from the conditions at the time of the strike of the coal miners. Following that walkout, there is no longer any diversion of cars, normally used for the Pacific Coast business, to other parts of the United States. Both the bunkering and domestic trade are on a prewar basis, with business in healthy condition.

The bunker price at present is $13.55, which has been maintained for some time. For domestic use, bituminous prices from Utah and Wyoming, f.o.b. net ton, are: Stove, $3.65; Lump, $3.65.

SEATTLE

Quotations at the present time are as follows:

Seattle—$6.75 per ton 2000 lb., f.o.b. bunker tips.

Tacoma—$6.75 per ton 2000 lb., f.o.b. bunker tips.

Portland—$8.75 per ton 2000 lb., f.o.b. bunker tips.

Portland—$9.50 per ton 2000 lb., in the stream over the ship's rail.

The above rates apply to the standard grades of Black Diamond and South Prairie coal.

Quotations on British Columbia coal in Seattle Harbor are as follows:

Comox Lump—$10.00 per ton of 2240 lb., f.a.s.

Comox Marine Mixture $9.85 per ton 2240 lb., f.a.s.

Coke

CONNELLSVILLE

Market remains stagnant. Rise predicted in event of removal of price control but this might be short lived.

Coke market continues extremely inactive, as there is only a very limited tonnage offered in the open market at the Government limits, and this is chiefly off-grade coke, though the full price is quoted.

The market presents all the appearance of an extreme scarcity, and it is predicted quite generally that if the Government control is taken off in the near future, as is thought in some quarters will be the case, prices will soar at once, say to $8 or $10 for furnace coke, or even higher.

Price control will not come off, at the earliest, until the President has studied the majority and minority reports of the Robinson bituminous wage commission and acts upon it, for the commission merely recommends in the matter of price control. Meanwhile the transportation situation is expected to improve almost from day to day, if the present mild weather continues, and that will necessarily have a great effect upon coke.

The coke market might advance very sharply, but the situation has elements of eventual weakness in it, there being probably more than 100,000 tons of coke piled in the Connellsville region, awaiting cars, while a few of the furnace interests have chanced to accumulate stocks of considerable magnitude, even though others have not had enough for full operation. The furnaces with stocks would probably order contract shipments to be stopped or curtailed, in the event of transportation conditions being permanently improved, and only a few suspensions would be needed to give the coke market a chill.

The market, while practically nominal, remains quotable at Government limits: Furnace coke, $6; foundry, $7; crushed, over 3-in., $7.30, per net ton at ovens.

The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended March 6 at 238,286 tons, a decrease of 9,749 tons, and a tonnage slightly under the January-February average.

BUFFALO

The situation does not improve much. Coke has all along been about as scarce as bituminous coal and it will not be really plenty yet.

The season's policy does not seem to be determined upon at the furnaces. They are far enough behind their orders, but so many difficulties come up that a bold forward movement seems out of the question. It is expected that a liberal output will be made the coming season, but it is far from assured. Ore has been sold in quantity, but none has been chartered yet. Prices f.o.b. here are $9.60 for 72-hour Connellsville foundry, $8.60 for 48-hour furnace, $7 for off grades and $7.75 for domestic sizes.

BIRMINGHAM

Demand for furnace and foundry coke here is very strong but there is none available for the spot trade or for additional contracts.

The curtailment in coal production has likewise affected the output of coke, and equipment for the movement of the product is also very short. Yolande foundry is being billed to contract consumers at $9.75 ovens, which is also the quotation on Brookwood foundry. All grades are quoted at government prices.